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TCA

The Canadian Amateur Radio Magazine

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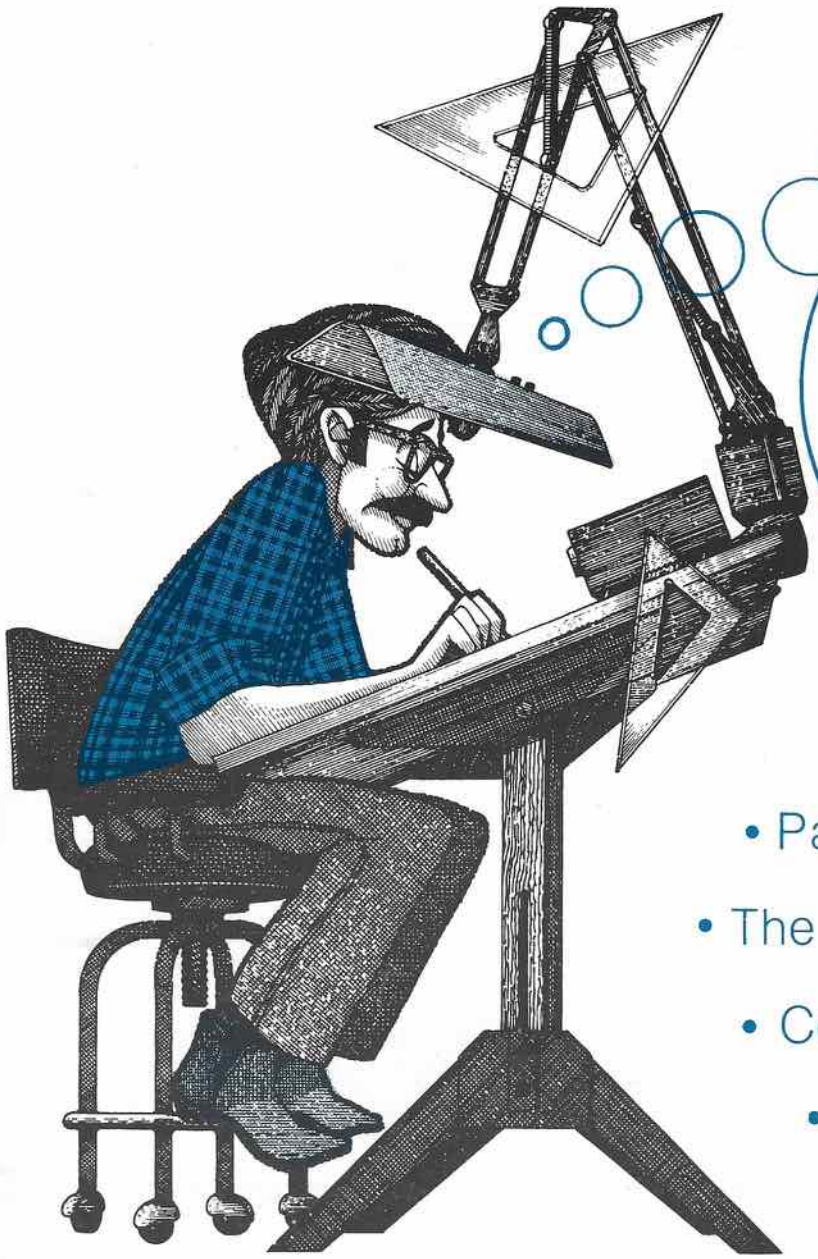
SEPTEMBER 1980

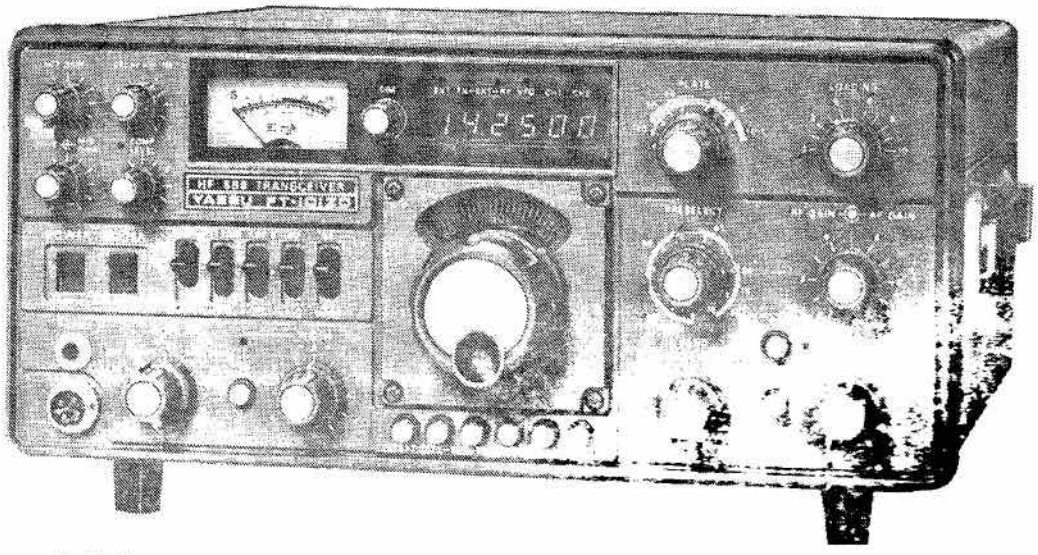


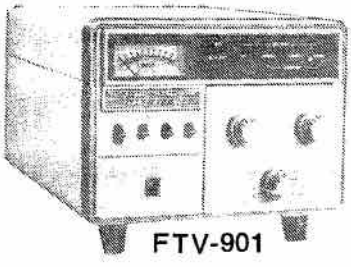
TECHNICAL SECTION:

How to Build a Dynamic Battery Tester, an Auto-Alert Tone Encoder and a Half-sloper Antenna!

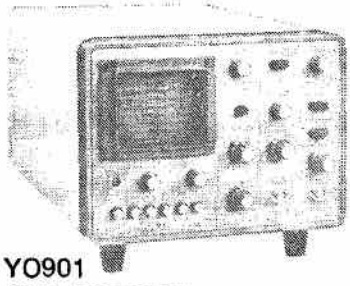
Also

- Packet Radio in Montreal
- The Canadian Traffic Handler
- Contest Scene
- Swap Shop and more!





FTV-901



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Write for Catalogue Sheets
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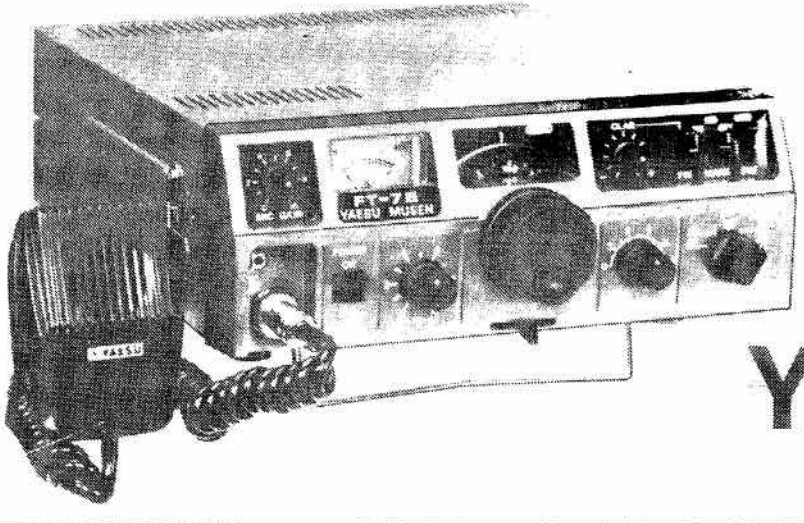

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HUSTLER INC
3275 North B. Ave. • Kissimmee, Florida 32741

Clearly the choice of those who know quality.

HF Mobile Antennas

FOR 6 - 10 - 15 - 20 - 40 - 75 - 80 METERS

Only Hustler gives you a choice of mounting location with masts that fold at roof line for quick interchange of band resonators or easy garaging. When operating, the mast and resonator assembly is erected and held vertical with a shakeproof sleeve clutch. The 54" mast alone serves as a ¼-wave 6-meter antenna. Each mast is made from finest quality ½" O.D. hard drawn brass and heat treated aluminum. The stainless steel base has ⅜"-24 thread to fit all Hustler ball mounts.

Model MO-1
For deck or fender mounting — Fold is at roof line 15" above base. Shipping Weight: 1.9 lb.

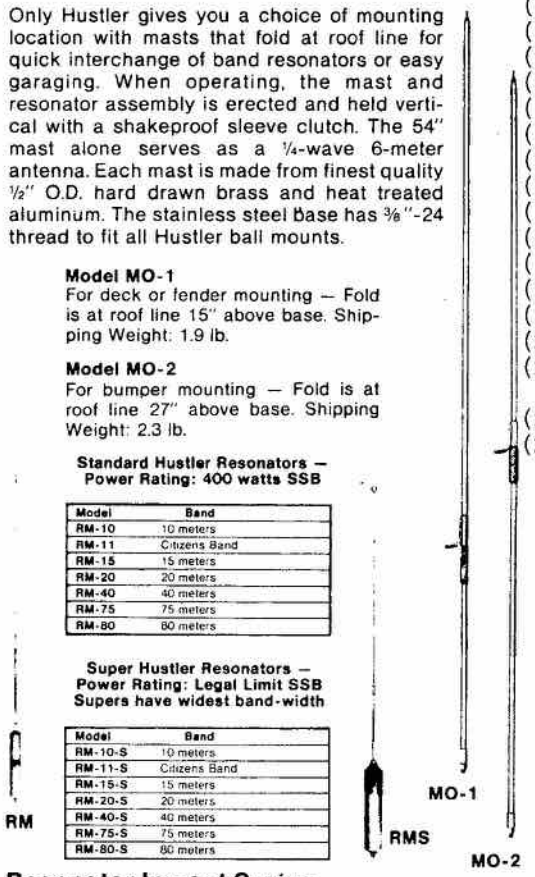
Model MO-2
For bumper mounting — Fold is at roof line 27" above base. Shipping Weight: 2.3 lb.

Standard Hustler Resonators — Power Rating: 400 watts SSB

Model	Band
RM-10	10 meters
RM-11	Citizens Band
RM-15	15 meters
RM-20	20 meters
RM-40	40 meters
RM-75	75 meters
RM-80	80 meters

Super Hustler Resonators — Power Rating: Legal Limit SSB Supers have widest band-width

Model	Band
RM-10-S	10 meters
RM-11-S	Citizens Band
RM-15-S	15 meters
RM-20-S	20 meters
RM-40-S	40 meters
RM-75-S	75 meters
RM-80-S	80 meters



Resonator Impact Spring
Model RSS-2
Finest quality stainless steel spring for use between resonator and masts listed above. Supplied ready to use with std. 3/8"-24 threads. Shipping Weight: 0.36 lb.

LIFETIME PERFORMANCE
Quick Disconnect
Model QD-1
Designed for trouble-free performance. 100% stainless steel. Special design assembly guards against ice and dirt freeze up. Easy press-and-twist antenna release. Accommodates any length mobile antenna. Equipped with 3/8"-24 threads, female one end and male on the other. Shipping Weight: 0.40 lb.

. HUSTLER CANADIAN PRICES.....80-07-01

(1) RESONATORS....RM-10 @$16/RM-11@$16/RM-15@$16
RM-20@$20/RM-40@$25/RM-75 @$28/RM-80@$28/
RM-10S@$27/RM-11S@$27/RM-15S@$27/RM-20S@$32
RM-40S@$37/RM75S@$57/RM-80S@$57

(2) MOBILE MASTS MO-1 @$33 MO-2 @$33 +$3 S&H
(3) RSS-2 RESONATOR IMPACT SPRING @$10 +$2 S&H
(4) QD-1 QUICK DISCONNECT @$24 +$2 S&H
(5) BM-1 BUMPER MOUNT @$28 +$2 S&H
(6) SSM-1 BALL MOUNT + SPRING @$49 +$3 S&H
(7) SSM-2 BALL MOUNT,ONLY.....@$26 +$2 S&H
(8) SSM-3 STAINLESS STEEL SPRING @$24 +$2 S&H
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(19) MM-2 UNIVERSAL MOUNT @$21 +$ 2 S&H
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(21) 3-TBA TRI BAND BEAM ANTENNA 3 ELEMENTS
8 dB GAIN 13 FT.TURN RADIUS $329 +$7 S&H
(22) 5-BTV VERTICAL ANTENNA 1000 WATTS $179 +$7 S&H
(23) 4-BTV " " " 40-10 METERS @$139 +$7 S&H

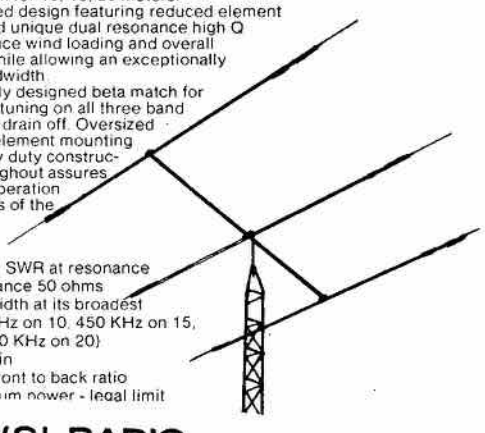
NEW

3-TBA Tri-Band Beam
10 - 15 - 20 METER
Fixed Station Antenna

Engineering, performance and Hustler's tradition of outstanding quality is yours in the model 3-TBA tri-band beam for 10, 15, 20 meters.

Improved design featuring reduced element length and unique dual resonance high Q traps reduce wind loading and overall weight, while allowing an exceptionally wide bandwidth.

Specially designed beta match for precision tuning on all three band and static drain off. Oversized boom to element mounting and heavy duty construction throughout assures reliable operation regardless of the weather.



- Lowest SWR at resonance
- Impedance 50 ohms
- Bandwidth at its broadest (650 KHz on 10, 450 KHz on 15, and 200 KHz on 20)
- 8db gain
- 25db front to back ratio
- Maximum power - legal limit

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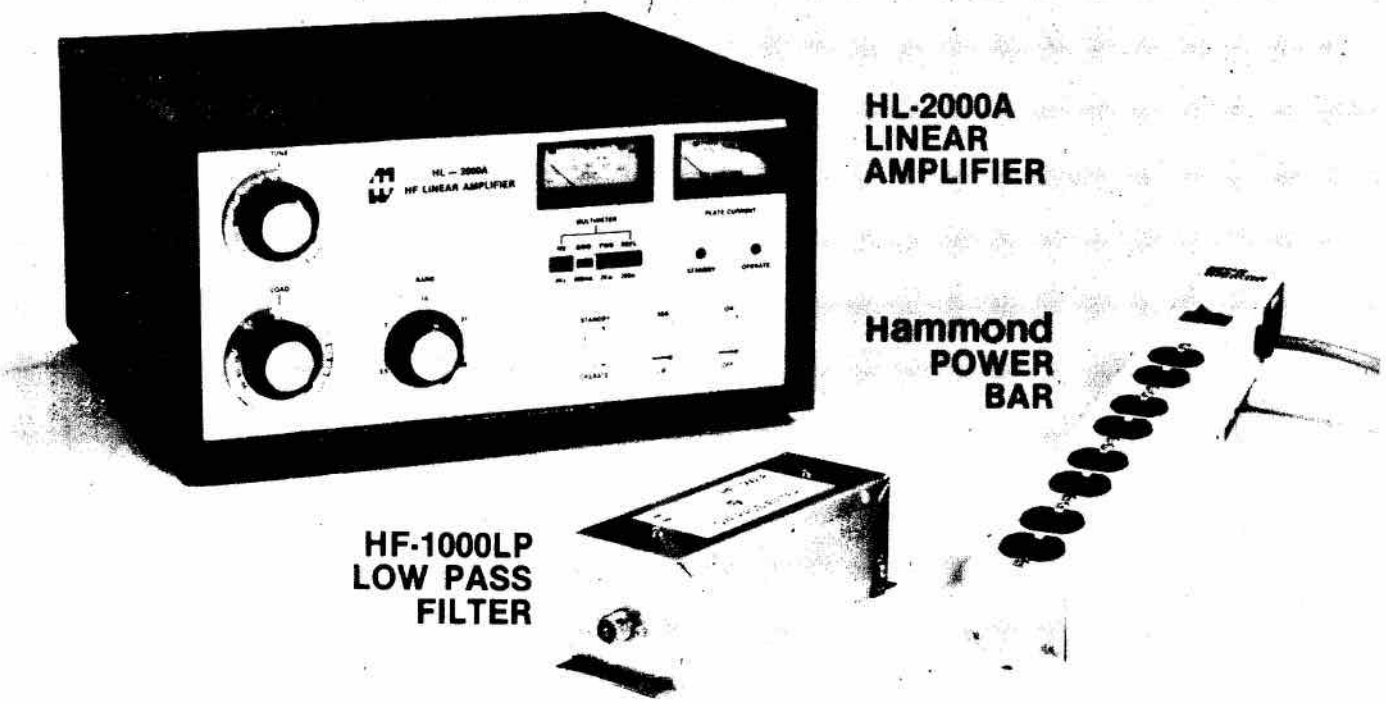
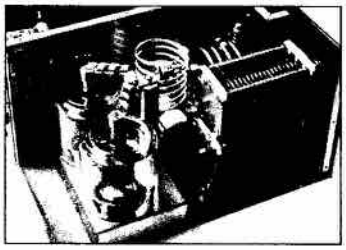


HL-2000A LINEAR AMPLIFIER

Hammond POWER BAR

HF-1000LP LOW PASS FILTER

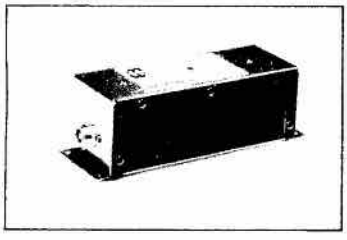


HL-2000A LINEAR AMPLIFIER

A truly rugged, uniquely Canadian, linear amplifier in the Hammond tradition. Top quality, heavy duty components designed for longest life performance.

General specifications;

- 2000 watt PEP input SSB, 1000 watt CW and RTTY covering the 10M, 15M, 20M, 40M, and 80M amateur bands.
- Special Hammond power transformer designed for continuous duty operation. Rated 1100VA - 60Hz.
- Two 3-500Z Zero based triodes, air chimney cooled.
- Computer grade capacitors for maximum reliability.
- Full Pi-L output circuit network for maximum harmonic suppression.

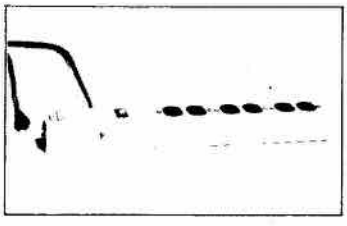


HF-1000LP LOW PASS FILTER

Designed to eliminate spurios conduction from transmitters operating below 30 MHz and eliminate 2nd and 3rd harmonics appearing in the TV bands when operating in 10, 15, and 20 meters.

General specifications

- 0 to 30 MHz band pass.
- Cutoff frequency 32MHz ± .5MHz.
- Power capacity 2000W PEP SSB.
- Impedance 52 ohms input and output.



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Power Bar is a multi receptacle device for connecting several pieces of equipment to a single outlet:

- 4, 6 or 8 receptacle models
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- 15amp circuit breaker
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Please send further information; ☐ HL-2000A LINEAR AMPLIFIER ☐ Hammond POWER BAR ☐ HF-1000LP LOW PASS FILTER

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FT-707

YAESU

HF SSB TRANSCEIVER

The FT-707 "Wayfarer" is the beginning of a new generation of compact solid state transceivers. Though hardly larger than a book, the FT-707 is a full-feature transceiver with performance you might expect only in a "top of the line" transceiver. Ideally suited for your home station or as a traveling companion, the FT-707 is the radio of the 1980's.....and it's brought to you by the active hams at YAESU.

FT 707 $1199.00

NEW BANDS FACTORY INSTALLED

When the new amateur bands become available, you won't want to go through the time and expense of overhauling your present equipment. With the FT-707, you get complete coverage of 80 through 10 meters, including the new 10, 18, and 24 MHz bands, all factory installed!

FP-707 POWER SUPPLY	$239.00
FV-707DM DIGITAL VFO	$439.00
FC-707 ANTENNA COUPLER	$189.00
RACK MOUNT YOUR STATION	$35.00
FT-707 TRANCEIVER	$1199.00

GENERAL

Frequency coverage: 80 m 3.5–4.0 MHz, 40 m 7.0–7.5 MHz, 30 m 10.0–10.5 MHz, 20 m 14.0–14.5 MHz, 17 m 18.0–18.5 MHz, 15 m 21.0–21.5 MHz, 12 m 24.5–25.0 MHz 10 m 28.0–29.9 MHz **Modes of operation:** LSB, USB, CW, and AM **Power requirements:** 13.5 volts DC, negative ground **Current consumption:** DC 1.5 amps receive, DC 20 amps transmit **Case size:** 93(H) x 240(W) x 295(D) mm incl. heat sink **Weight:** Approx. 6.5 kg

TRANSMITTER

Power input: SSB/CW 240 watts DC, AM 80 watts DC **Carrier suppression:** Better than 40 dB **Unwanted sideband suppression:** Better than 50 dB at 14 MHz, 1 kHz mod. **Spurious emissions:** At least 50 dB down **Frequency response:** 350–2700 Hz (–6 dB) **Third order distortion products:** At least 31 dB down **Frequency stability:** Less than 300 Hz drift over 30 minutes after 10 minute warmup; less than 100 Hz drift after 30 minute warmup **Modulation type:** (SSB) Balanced modulator, (AM) Amplitude modulation of a low power stage **Antenna output impedance:** 50 ohms **Microphone impedance:** 500–600 ohms (low impedance)

RECEIVER

Sensitivity: SSB/CW 0.25 μV for 10 dB S/N, AM 1.0 μV for 10 dB S/N **Selectivity:** SSB 2.4 kHz (–6 dB), 4.0 kHz (–60 dB); CW* 0.6 kHz (–6 dB), 1.2 kHz (–60 dB); CW** 350 Hz (–6 dB), 1.2 kHz (–60 dB); AM 3.6 kHz (–6 dB), 6.8 kHz (–60 dB) **Image rejection:** 60 dB (80–12 m), 50 dB (10 m) **Audio output impedance:** 4–16 ohms **Audio output:** 3 watts @ 4 ohms @ 10% THD **Variable bandwidth control:** Continuous from 300 Hz to 2.4 kHz (SSB/CW modes only)

* with optional 600 Hz CW filter
** with optional 350 Hz CW filter

VE AMATEUR RADIO SALES

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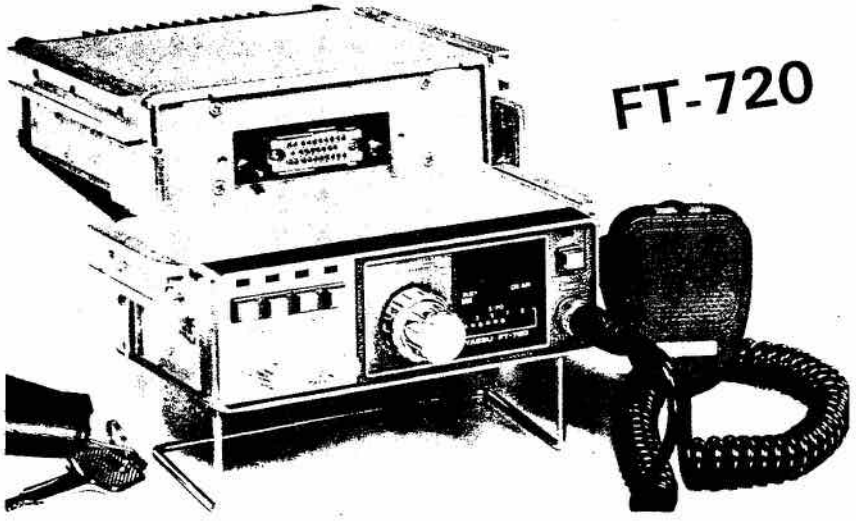


FT-720

ULTRA COMPACT VHF/UHF COMPUTERIZED FM TRANSCEIVER

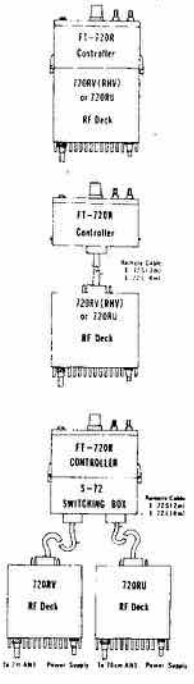
Choose Your Favorite Band
The FT-720R Control Head may be used with either the FT-720V 2 Meter RF Deck or the FT-720U 70 cm RF Deck. If you have never operated on 440 MHz, you'll be surprised at the superb coverage and clear, interference-free channels.

Advanced PLL Technology
Recent advances in Large-Scale-Integrated (LSI) circuitry have made single-chip PLL control systems a reality. In the FT-720R you get the stability of PLL, plus the flexibility of microprocessor control, in a package more compact than was ever possible before.

Scanning
Fingertip controls on the microphone provide instant up/down scanner control. The scanner may be programmed to stop on a busy or clear channel, if you wish.

Optional Control Box
The S-72 control box option will allow you to connect the control head, the 2 meter RF Deck and the 70 cm RF Deck together, thus enabling you to choose the desired band is simply by throwing one switch!

Five Memory Channels with Priority Feature
As many as five memory channels may be programmed, for instant return to a favorite repeater or simplex channel. One of the memory channels may be used as a priority channel, as well, and the microprocessor will then search between the priority channel and your main dial frequency!



	FT-720RV	FT-720RU
Frequency coverage:	144.00–147.99 MHz 144.00–145.99 MHz	430–439.975 MHz 440–449.975 MHz
Synthesizer steps:	10 or 12.5 kHz	25 kHz
Power output:	10 watts (RV model) 25 watts (RVH model)	10 watts
Modulation type:	Variable reactance phase modulation	Variable reactance phase modulation
Devision (max):	±5 kHz	±12 kHz
Maximum bandwidth:	16 kHz	30 kHz
Spurious emissions:	–60 dB or better	–60 dB or better
Antenna connector:	SO-239	Type N
Output impedance:	50 ohms	50 ohms
Microphone impedance:	500–600 ohms	500–600 ohms
Receiver type:	Double conversion superheterodyne	Double conversion superheterodyne
First IF:	10.7 MHz	16.9 MHz
Second IF:	455 kHz	455 kHz
Sensitivity:	0.32 μV for 20 dB quieting	0.5 μV for 20 dB quieting
Selectivity:	±6 kHz (–6 dB) ±12 kHz (–60 dB)	±12 kHz (–6 dB) ±24 kHz (–60 dB)
Audio output:	1.5 watts @ 8 ohms @ 10% THD	1.5 watts @ 8 ohms @ 10% THD
Audio output impedance:	8 ohms	8 ohms
Power requirements:	13.8 VDC, negative ground 13.6 VDC (RVH model)	13.8 VDC, negative ground
Current consumption:	Approx. TX 3.5A (RV model) TX 6.5A (RHV model) RX 0.5A	Approx. TX 4.5A RX 0.5A
Case size:	150(W) x 50(H) x 247(D) mm	150(W) x 50(H) x 247(D) mm
Weight:	Approx. 2.5kg	Approx. 2.5kg

Specifications subject to change without notice.

PRICES

FT 720R CONTROL HEAD WITH BRACKET	$329.00
720 RVH 2 MTR. RF DECK - 25 WATTS	$370.00
720 RU 440 MTR. RF DECK - 10 WATTS	$450.00
S72 SWITCH BOX	$129.00
E72L REMOTE CABLE	$63.00

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Most Advanced HF Transceiver in the World—ASTRO 150

HF SSB Transceiver featuring "VRS" a knob with a new twist, and over 100,000 fully microprocessor-controlled frequencies on present or envisioned "ham" bands.

☐ High Power — Full 235 Watts PEP & CW, all bands ☐ Truly Synthesized in accurate 100Hz steps ☐ Full CW Break-In with narrow XTAL Filter ☐ Standby Memory — ALL BANDS ☐ True PEP output meter ☐ Model 150 — 80 thru 10 meters ☐ Model 151 — 160 thru 15 Meters

Most Versatile HF 160M-10M Transceiver in the World—ASTRO 102 BX

Dual PTO's, 235 Watts PEP & CW on all frequencies. IF Passband tuning, with LED position indicators and full break-in.

☐ All solid state ☐ Modern design and styling ☐ Tunable notch filter ☐ 4 Function Meter ☐ Speech Processor ☐ VOX ☐ Adjustable AGC Decay ☐ 2 Position CW Wave Shaping ☐ 16 Pole IF Filter ☐ Crystal CW Filter ☐ PLL Synthesized Band Selection

Economy with top SWAN quality and mobility—100MX

235 Watts PEP & CW on all frequencies. The field-proven Rig the whole world's talking about.

☐ All solid-state ☐ Modern design and styling ☐ VOX ☐ Noise Blanker ☐ Semi-CW Break-in ☐ RIT ±1.5KHz ☐ 25 KHz Calibrator, built-in ☐ CW side tone with adjustable pitch and level ☐ Internal speaker ☐ Jack for external counter

ASTRO 150

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ASTRO 102 BX	$1795
PSU 6 P.S.	$ 289
ST-3A Tuner	$ 249

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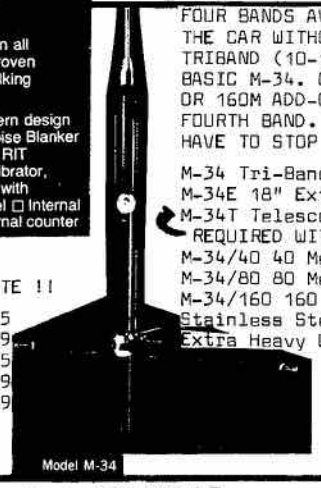
M-34 Tri-Band 10,15,20M------	$119
M-34E 18" Extension Rod------	$ 24
M-34T Telescopic Top Rod-----	$ 12
REQUIRED WITH THE COILS BELOW	
M-34/40 40 Meter Coil--------	$ 33
M-34/80 80 Meter Coil--------	$ 33
M-34/160 160 Meter Coil------	$ 33
Stainless Steel Bumper Mount-	$ 19
Extra Heavy Duty Spring------	$ 18



Model M-34

M34 Mobile antenna that covers 10M, 15M, 20M with base rod. 40M, 80M, 160M add-on coils available. 500 watts PEP rated.

INSURED SHIPPING & HANDLING $2.00

Low Pass Filters for Transmitters

have four pi sections for sharp cut off above the hf amateur bands and to attenuate transmitter harmonics falling in any TV channel and fm band. 52 ohm. SO-239 connectors built in.

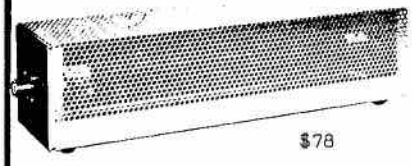
Model No. 1608 **Drake TV-3300-LP**

1000 watts max. below 30 MHz. Attenuation better than 80 dB above 41 MHz. Helps TV i-f interference, as well as harmonic interference.

$39

THESE DRAKE ACCESSORIES ARE NOW AVAILABLE FROM HAM RADIO ATLANTIC

Drake "Dry" Dummy Loads—no oil required



$78

Model 1551 Drake DL-1000

- **1000 watts** for 30 seconds, with derating curve to 5 minutes. Designed to accept Drake FA-7 cooling fan for extended high power operation.
- **VSWR of 1.5:1 max.** 0-30 MHz.
- Provided with SO-239 coax connector, and rubber feet for desk or bench use.
- **Size** 14" x 3.6" (35.6 x 9.1 cm). Wt. 2 lbs (910 g)

$39

Model 1550 Drake DL-300

- **300 watts** for 30 seconds, with derating curve to 5 minutes.
- **Built-in PL-259** coax connector for direct connection to rear of transceiver or transmitter-no jumper coax necessary.
- **VSWR of 1.1:1 max.** 0-30 MHz 1.5 max. 30-160 MHz.
- Ideal as bench test device for amateur or commercial hf and vhf gear.
- **Small size** fits conveniently in any field service tool box. 6.7" x 2.08" (17.0 x 5.3 cm). Wt. 11 oz (310 g)

DRAKE

High Pass Filters for TV Sets

provide more than 40 dB attenuation at 52 MHz and lower. Protect the TV set from amateur transmitters 6-160 meters.

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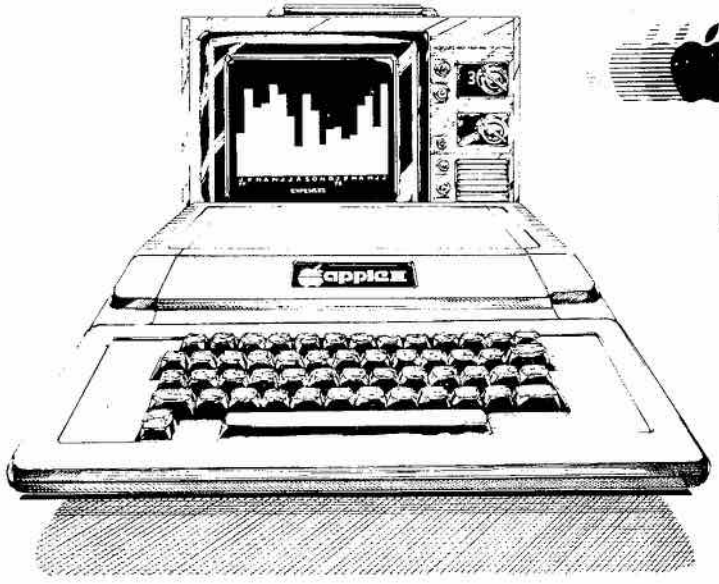

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M14...memorize transmit and receive frequencies independently for nonstandard offset.
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143.900-148.995 MHz, in switchable 5-kHz or 10-kHz steps.

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For frequency selection, transmit offset selection, memory programming, scan control, and selection of autopatch encoder tones.

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Entire band (5-kHz or 10-kHz steps) and memories. Automatically locks on busy channel; scan resumes automatically after several seconds, unless CLEAR or mic PTT button is pressed to cancel scan.

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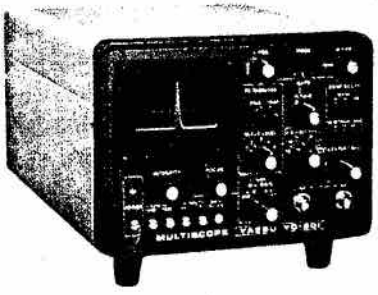

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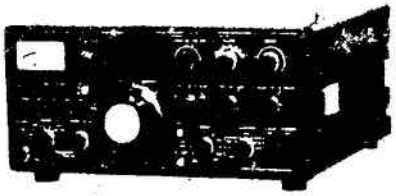

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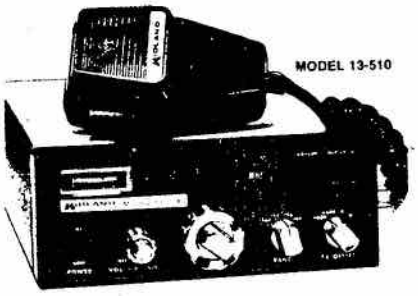

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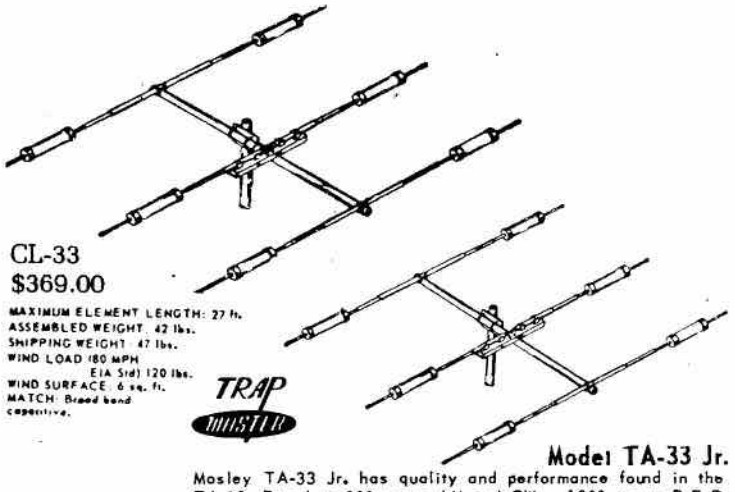

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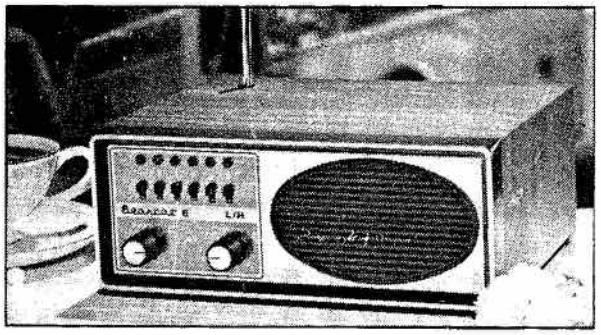

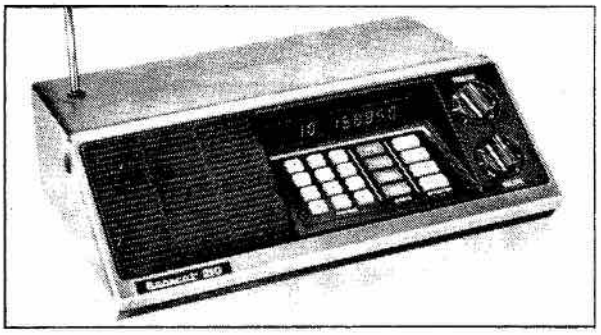

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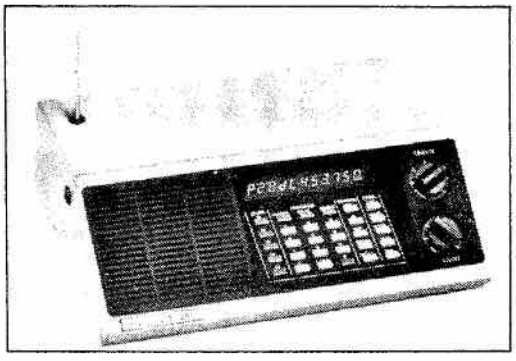

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THE CANADIAN *Contest Scene*

Dave Goodwin VE2DZE
4 Victoria Place
Aylmer, Quebec J9H 2J3

By all accounts, the Canada Day Contest this year was quite a success. It looks like this contest will become very popular among Canadians and even foreign Amateurs. Unfortunately, my summer was well-occupied with trying to scrape together enough money for University and I missed both the CDC and the Radiosport. By the time you read this, the CARF Phone Commonwealth Contest rules will be finalized and the publicity arranged. The Xmas contest was rather a bust, and another attempt will be made this year under the name 'Canada Contest', with rules the same as the CDC.

CONTEST CALENDAR

September
13-14 European DX SSB*
13-14 Can/Am SSB*
13-14 ARRL VHF
27-28 Can/Am CW*
October
3-4 VK/ZL/Oceania SSB
11-12 VK/ZL/Oceania CW
18-19 CLARA AC/DC
18-20 CARTG RTTY DX
25-26 CQ WW SSB
* Covered in July/Aug **TCA**

VK/ZL OCEANIA DX CONTESTS

Period: Phone 1000z Oct. 4 to 1000z Oct. 5. CW 1000z Oct. 11 to 1000z Oct. 12.

Bands: All Amateur bands. Classes: Single operator, all bands only, plus an SWL section. Exchange: RS(T) and serial number.

Scoring: 2 pt./QSO with VK/ZL, 1 pt/QSO with other Oceania. Multiplier is number of VK/ZL call districts worked on each band, added together. Entries: Logs must show date, time in z, call of station worked, exchange sent and received. Separate logs must be used for each band. A summary sheet must be included detailing a band-by-band breakdown of QSOs and multipliers, equipment used, and the customary signed declaration of observance of Contest rules and Radio Regulations. Logs must arrive by Jan. 31, 1981 at NZART Contest Manager ZL2GX, 152 Lytton Rd., Gisbourne, New Zealand.

CLARA AC/DC CONTEST

Period: 1800z Oct. 18 to 1800z Oct. 19. Bands: Both Phone and CW segments of the 80-15 metre bands. Recommended frequencies are Phone: 3775, 3900, 7200, 14160, 14280, 21300 kHz, and for CW: 3690, 7035, 14035, 21035 kHz.

Classes: Single operator, all bands only. This contest is open to all, but non-members of CLARA may only work YLs.

Exchange: RS(T), name and QTH. Scoring: 1 pt/QSO, 3 pt/QSO with a 'bonus' station. Bonus stations will identify themselves as such. Multiplier is the number of provinces and territories worked. A province or territory is counted only once for multiplier credit, regardless of band.

Entries: Must be postmarked not later than Dec. 31, 1980 and sent to Diana VanderZande VE7 DTO, SS#3, Jensen Rd., Prince George, B.C., V2N 2S7.

CARTG RTTY DX SWEEPSTAKES

Period: 0200z Oct. to 0200z Oct. 20. Bands: 80 through 10 metres. Classes: Single operator; multi-op./single transmitter; SWL section.

Exchange: RST, time z, and CQ Zone. Scoring: Each QSO in your own Zone counts 2 pt., outside your own Zone, consult the CARTG Zone chart available from CARTG. Multipliers are DXCC countries, Australian, Canadian and USA call areas. Each multiplier is counted once regardless of band. 200 bonus points can be claimed if the same Canadian station is worked on each of the five bands.

Entries: Separate log sheets must be used for each band. Official log sheets and Zone charts are available from CARTG for an SASE. Logs must be received by Jan. 1, 1981 at CARTG, 85 Fifeshire Rd., Willowdale, Ont. M2L 2G9.

CQ WORLD WIDE DX CONTEST

Period: SSB 0000z Oct. 25 to 2400z Oct. 26. CW 0000z Nov. 29 to 0000z Nov. 30. Bands: 160 through 10 metres.

Classes: Single op, single band; single op all band; multi/single; multi/multi.

Exchange: RST plus Zone. Scoring: for Canadians: 0 pt. per QSO with Canada, 2 pt per QSO with other North Americans, 3 pt per QSO with others. Multiplier is number of DXCC countries and CQ Zones worked on each of the bands added together.

Entries: Separate log sheets must be used for each band. Dupe sheets are recommended. Official log and entry forms are available from the CQ WW Contest Committee for an SASE or SAE plus IRC. Entries must be postmarked not later than Dec. 1, 1980 for the SSB contest, and Jan. 15 for the CW. Entries go to: CQ WW Contest Committee, 14 Vanderventer Ave., Port Washington, LI, NY, 11050, USA. Specify on the envelope whether the entry is for the SSB or CW event.

LETTERS:

CANADIAN LICENSEE LISTS?

Back in '73, CARF made an excellent submission to the Minister urging that the issuance of lists of Canadian licensees at a nominal cost be resumed – obviously without result.

Today we may be looking toward a near-crisis in Canadian unity problems, so the political climate is favorable for re-submission. The present situation is that DOC's computer tape (which is in order of postal code, not call sign or Province) can be rented for $250 per month, and I presume that this is the main source of the data in the Canadian Section of the 'Foreign' call book.

In the interest of inter-regional communication, **and** of Canadian unity, if the DOC itself is unwilling or unable to issue a Canadian list, they are no doubt in a position to pressure the Call Book People to offer a separate Canadian list at a reasonable price.

Frank Reeves VE7CT
Cowichan Bay, B.C.

DOC once issued a Canadian call book, but we are now left to the mercy of a foreign publisher. We'll have a go again, Frank and see what happens.

FULL MEMBERSHIP

I joined CARF in January this year while I was studying for my Amateur Certificate. The **TCA** magazine was one of the major reasons I continued (especially when I felt the code was a mystery I'd never solve). I just wish there was more of it – I find I read them from cover to cover (including all the ads) in two evenings. I do not understand it all, both because the technicalities are still beyond me and there is a lot of jargon; but time will cure both these hang-ups and then I'll enjoy re-reading the mags.

Turning to my real reason for writing: I have now passed the examinations, have a station licence and in fact have been on the air! I would like to be upgraded to full membership. In closing, thanks for your help and if I can be of service to CARF or any Amateurs, just say the word. R.H. Banning VE7FFU
North Vancouver, B.C.

AMATEUR RADIO LINK

"A project of the Victoria B.C. Kiwanis Club will link students at Person College by ham radio with their relatives and friends in their native countries around the world..." **appeared in a story in the Victoria Times, sent to us by VE7FBK, who writes to say:**

"The project is creating considerable interest in these parts (and) since the students at this college come from all over the world... it has wide implications... We hope to train them so that when they return to their own countries they will be able to meet their countries' requirement (for Amateur tickets). If you know of such projects elsewhere, let us know so that we can share experiences and determine the best procedure...

Albert E. King VE7BFK
Chairman Radio Project Com.
Kiwanis Club of Victoria
221 Linden Ave., Victoria
B.C. V8V 4E3

A laudable project, Albert, but the first part may run into some difficulty as third party traffic is forbidden in all except a handful of countries, all of them in the Caribbean and South America, except Israel and, of course, the U.S.A. Interested parties should correspond directly with Albert.

20-METRE HOO-HAW CONTINUES

As a Canadian Amateur retired in W7-land and on the other side of the fence, I find the attitude of the Canadian phone DXers inexcusable! Having got a slice of the 7 mc (sic) band below 7.000 kc... they now oppose expansion of the American phone band on 14 Mc!...

If numbers meant anything, VEs would be entitled to about 20 kc outside of the American band, so VEs must consider themselves lucky that Ws only want a 25 kc expansion. An expansion of the American phone band on 14 Mc might have a salutary effect on certain VEs and get them on CW. If the DOC decided to enforce regulations and test all Canadian Amateurs to see if they could read at even 10 wpm there would be a lot of VEs missing in the HF bands.

If CARF persists in supporting the dog-in-the-manger attitude of Canadian phone DXers I will let my membership lapse. I supported CARF to try to develop a national society... but now... YECHT!

John R. Ower
Box 1263
Litchfield Park,
Arizona, U.S.A.

C'mon home for a while John, you need a little maple syrup to sweeten you up a bit, and incidentally, we go for 'megahertz' and 'kilohertz' up this way now. The mooted expansion was not for 25 kilohertz, but 50 kilohertz, and it has brought an outcry from many foreign countries, not just Canada.

The regs here, incidentally, only require that you pass the CW exams at the required rate, not that you have to have that speed for a lifetime. [Thank goodness!]. There ARE other

TCA welcomes Letters to the Editor. Please send all correspondence to Letters to the Editor, 151 Fanshaw Ave., Ottawa, Ont. K1H 6C8.

facets to this intriguing hobby besides a speedy fist... like publishing TCA!

Last, but not least, John, the fact is that CARF did not originate the forty metre proposal. It came from individuals who presented it to two successive symposia composed of Amateurs from all parts of Canada, and it met with a democratic consensus of approval from those gatherings and thus formed part of the recommendations sent by them, through CARF, to the DOC.

Also, John, if the 20 metre U.S. expansion does go through, you will then be able to operate there in that slice as you would back here, so we hesitate to consider your comments entirely disinterested. Anyway, hang in there with the membership; at least consider that CARF has provided a forum for you to make your views known!

I strongly oppose any extension of the (20 metre) band in favor of U.S. Amateurs... What do they want? All of the band? Besides, by (their) using kilowatt transmitters, low power operators would not be able to QSO with other stations. I experience problems all the time with U.S. ops using the band like CBers.

Carlo Mazza VE3JPW
Toronto, Ont.

That's what I would call summarizing the issue!

HAITI

Here is good news for Canadian operators who vacation in Haiti... CARF has learned that Canada now has reciprocal operating privileges with that Caribbean country. Third Party traffic agreements are still under negotiation, but should be concluded soon.

So we may lose 14.150 to 14.20 MHz?

Shared frequency? Let me give you an example: after a winter of QSOs on ten metres with G4DOB, he arranged to fly here for a visit. Ten metres died and a sked on 15 was arranged by mail. Contact was made, flight numbers and hotel reservations were about to be given when QRM???

Each time the 'G' signal came on, an S9 plus signal also came in, rapidly repeating only 'WB4XXX'. No further info could be exchanged with the 'G' station... and that was a **shared** frequency!? Let's retain that sheltered section of 20 metres for courteous, pleasant friendships.

Art Kerr VE3DOD
Minden, Ont.

All Canadian (Inner) Space Station

When the possibility arose of launching an Amateur radio experiment on a National Research Council balloon, the Canadian Amateur Radio Research Club was born, as the Council could not negotiate with individual Amateurs.

The first result was the flight of the 'Skyhook' operation in July last year when a 2-metre 'simplex repeater' was launched on a balloon from Gimli, Manitoba and rose to an altitude of 102,000 ft.

Initial membership was small but the members were far-seeing and had high ambitions. Here was an opportunity for Canadian Amateurs to have access to facilities, equipment and expertise seldom available to our fraternity. Now Canadian Amateurs could launch into the space age.

Following the success of the Skyhook flight, membership has increased and plans are being discussed for future experiments and projects. Although not all members would consider themselves to be experimenters in the normally accepted sense, all are keen to be involved in future projects, and each can play his part, however humble.

The Club invites applications for membership from all Amateurs and will consider any suggestions for future projects and experiments. After listening to some of the ideas being kicked around at a recent meeting, it seems that no project would be considered "too far out"!

Among future projects in hand, or being discussed, are the development of a balloon package in which an RCA 1802 C.P.U. will be remotely programmed to perform various on-board physical functions, and a scheme to install UHF links between three Manitoba repeaters to provide what can only be described as dramatic coverage.

If you feel that you want to be a member of this exciting team, please contact the Club at the address below. Your membership fee of $25 will not only allow you input to future activities, but will give you access to all the test equipment and technical know-how of the Club members. For information write to: Jim Barrie VE4FK, Temporary Secretary, Canadian Amateur Radio Research Club, Box 1785, Gimli, Manitoba R0C 1B0.

Call for Nominations

The Affairs and Policies of the Federation shall be managed by the Board of Directors comprising six Regional Directors, each nominated and elected by the Full members of the applicable Region.

Regional Directors represent the membership of their Region to the councils of the Federation and are the senior CARF officials of their Region. Each Director has a budget to cover expenses incurred in carrying out the duties and responsibilities of office and travel expenses are also paid to attend the annual meeting of the Board and one meeting of the National Executive.

Regional Directors shall be a Full member of the Federation, resident in the Region for which elected, and are elected to hold office for a period of two years beginning at the commencement of the Board meeting held after the election process (May 1981).

The CARF Regions are:

Atlantic - Atlantic provinces
Quebec - Province of Quebec
Ontario - Province of Ontario (2 Directors)
Mid-West - Provinces of Manitoba, Saskatchewan, Alberta and N.W.T.
Pacific - Province of British Columbia and Yukon Territory

Five or more Full members of CARF may nominate any other Full member in their Region for election as Regional Director by filling out a Notice of Nomination and sending it to: CARF Secretary, Box 356, Kingston, Ontario K7L 4W2, for arrival prior to December 15, 1980.

The Notice of Nomination shall contain the following statements:

'We, the undersigned, hereby nominate (Name, Call, Postal Address) for the position of ..... Regional Director of the Canadian Amateur Radio Federation Inc.' (Add the signatures and calls of nominators below).

'I hereby accept the nomination for ..... Regional Director and, if elected, will perform the duties and responsibilities of my office to the best of my abilities'. Signed (Name, Call, Date)

All nominees will receive CARF documentation to acquaint them with the functions of Regional Directors and to keep them abreast with CARF and Amateur Radio activities. Each nominee is requested to supply the CARF Office with a resume of Amateur and organizational background, interest in seeking office and any views they hold on the future development of CARF. Ballots will be mailed to Full members in all Regions holding elections in January 1981 for return by March 15, 1981.

-VE3AHU

Royal Naval Amateur Radio Society

British Amateurs are not allowed to operate MM on board H.M.S. ships, but the Royal Navy's newest ship, H.M.S. Invincible, an aircraft carrier, recently steamed into Portsmouth with G3KLG/MM aboard. He caused quite a stir on two metres as the ship arrived in Spithead; she operated on 40 metres in the Irish Sea when she was undergoing sea trials, but now that the White Ensign has been hoisted all Amateur operation ceases.

The RNARS has been trying to get this changed, but in the 55-page Newsletter of the Society it reports no change. The RNARS, which mans GB2RN H.M.S. Belfast now anchored in the Thames River at London as an Imperial War Museum, is open for membership to serving or past members of UK, Commonwealth, and Merchant Navies.

With members around the world, there are many frequencies one can operate: 14340 kHz 2000Z Sundays for VE/USA members, 21200 kHz 1800Z Sunday. RNARS CW DX on 14052/21052/28052. For full info write VE3AML, #1210 Rowland, RR 5 Sarnia, Ont. N7T 7H6.

CARF Trophy to VE1AIH

Sauli Aronsankari VE1AIH was the winner of the first CARF trophy for Canadian single operator entries in the CQ Magazine WPX CW Contest. The presentation took place at the banquet of the Dayton, Ohio, Hamfest in April.

'CQ Magazine' generally presents the awards for its contests at this affair, and Sauli received the plaque from retiring CARF secretary John Gilbert VE3CXL, who was in attendance.

CARF also issues plaques for the top Canadian single-op, single-band entry in CQ's WW CW contest and, starting this year, the Federation will award plaques for the top ASCII scores both worldwide and from Canadian stations in the Canadian Amateur Radio Teletype Group (CARTG) RTTY Sweepstakes.

VE3CDC leaves Editor's post

Doug Burrill, **TCA** editor for the past six years, announced his resignation from that position to the CARF annual meeting.

Cary Honeywell VE3ARS, whose experience included editing the Ottawa ARC 'Groundwave' and who labours in the CBC technical vineyards in Ottawa, has been appointed to take on the editorship. Doug wrote to CARF President Bill Wilson:

"It is with a great deal of regret that I must, due to the pressure of a job combined with a recent health problem, leave the editorship of **TCA**.

"It has been more than seven years since we started out with **TCA** and almost seven years to the month that our first editor, Gil Stevens VE3BBQ, passed away after having launched it with a mere 300 members. We were fortunate to have had a person like Gil to start things off and very unfortunate it was that he did not live to see **TCA**'s acceptance and success. We were also fortunate to have found Steve Campbell to carry on in his place. Steve's youthful enthusiasm and his creative and innovative approach to **TCA** production has been a key factor in its progress.

"I won't be too modest about my own participation in **TCA**'s success because I have enjoyed it hugely. It allowed me to pursue a part-time career in journalism, which was my intent 30 years ago when I graduated from Carleton University with a Bachelor of Journalism degree. It is a profession not noted for its monetary reward and hence I never did pursue it as a career. **TCA**, however, allowed me both to enjoy my creative bent and to do something else about which I have strong feelings as a result of seeing just how this country could respond when the chips were down. I believed that what we could accomplish in wartime we could also do in peacetime ... hence my ten-year commitment to help build a truly and totally Canadian Amateur organization ... of which **TCA** is a key part.

"I commend to you Cary Honeywell VE3ARS as my successor. Dave Nessman VE3 GEA will continue as Assistant Editor and I know that our feature editors, Ed Hartlin VE3FXZ, Hugh Lines VE3DWL, Dave Goodwin VE2DZE and Charles MacDonald will continue their excellent support. (Garth Hamilton, regrettably, has had to relinquish the DX column.)

73, Doug"

Doug expresses to readers his deep appreciation of their support of CARF and **TCA** and especially to those many, many kind souls who, over the course of the years, took time to write to him or to contribute to **TCA**. They have, by their support and confidence, made **TCA** and CARF what they are today ... a growing, viable and truly Canadian Amateur publication and organization.

With his retirement from the post of **TCA** editor, Doug VE3CDC may get some time to get on the air. He is seen here at the HF transmitter position of the Carleton University ARC in Ottawa. VE3OCU, the Carleton station, doubles as VE3TCA which transmits the weekly CARF News Service radio bulletins. Doug and another Amateur founded the Carleton club away back in 1949 when it went on the air with some surplus gear and the call VE3CCO, 'Carleton College (as it then was) Ottawa'. Photo by Bob Baillargeom VE3MPG.

CARF Annual Meeting

The CARF Board of Directors met in Ottawa on May 30, 31 and June 1 and re-elected Bill Wilson VE3NR President of the Federation for another term. Don Slater VE3BID was elected Vice President. Lorna Hill VE3IWH, Don Emmerson VE3KJW and Art Blick VE3AHU accepted the posts of Treasurer, Secretary and General Manager respectively.

At the meeting, the Board approved the hiring of secretarial help at the Kingston office, and issued a CARF life membership plus publicity in **TCA** to AMSAT Canada.

Full details on the meeting will be given in the October issue. To whet your appetite, here are two committee reports that were presented at the meeting.

CARF-DOC Liaison/Regulations

During the past 12 months, the CARF Radio Regulations Handbook has been rewritten and expanded. Two amendments, necessitated by revisions to the General Radio Regulations Part II have been prepared for printing. The second of these amendments covers the extensive revisions made to the 'Amateur Service' part of the Regulations as a step in the de-regulation and codification program being undertaken by the DOC.

Direct liaison has been established with the Wireless Institute of Australia, Queensland Branch, through personal contact with the president (VK4QA) during a visit to Australia and his subsequent visit to Canada. Many subjects of mutual interest and concern to Amateurs, including operator qualifications and examinations, recognition by and membership in the IARU, Third Party Traffic Agreements, were discussed and publications were exchanged.

The exchange of publications with the Radio Society of Great Britain was accomplished as a result of 20m contacts and correspondence with G2ABC.

As a result of concern expressed by the Executive relative to the unprecedented growth of illegal operations adjacent to and within Amateur bands (particularly 10 metres), countermeasures are being instituted. Plans are underway for the organization of a reporting system by Canadian Amateurs of illegal operations noted both within and without Amateur bands. If sufficient support is received, the reports will be summarized and submitted to the DOC for decisive action.

The 'Canada Gazette' is regularly perused for announcements of interest to Canadian Amateurs.

Continued personal liaison is maintained with appropriate officers at DOC Headquarters on matters relating to Amateur activities.

A. P. Stark VE3ZS, Chairman

Radio News Service

CARF Radio News Bulletins have been sent on a regular basis since the beginning of January 1979, starting with VE3TCA only. It is now being sent by a network of about 20 stations across the country. At present, bulletins are transmitted by phone, CW and both Murray and ASCII RTTY on 80, 40, 20, 10 and 2 metres.

Radio News Bulletins are produced weekly, and are mailed from VE3TCA in Ottawa to the News stations. Stations are encouraged to copy the transmissions from VE3TCA, when possible, for later retransmission. This reduces the number of mailings required, and ensures that the news is distributed as quickly as possible.

The response to these bulletins has been favorable, and in the case of the news of the proposed expansion of the U.S. 20 metre phone band, the response was overwhelming. That particular instance demonstrated to many Amateurs the usefulness of CARF and its Radio News Service.

We would like to see the bulletins transmitted on more of the local and regional nets, where the present coverage is incomplete. To our knowledge, coverage appears to be least complete in the Prairie provinces and the Maritimes. Consultation is presently going on with stations in these areas, who may transmit news bulletins in the future.

The News Service will discontinue its regular schedule during the months of July and August, due to the generally decreased radio activity and the lack of worthwhile news. However, special bulletins will be transmitted at the regular times when the need arises.

The future should see an increase in the number of local two metre and HF bulletin stations. □

Brett Delmage VE3JLG

The Canadian Traffic Handler

Ed 'Chip' Schoenherr VE3JLL
Box 149, Metcalfe, Ont. K0A 2P0

About four months ago, the writer was asked by a number of Ontario traffic handlers to put down in writing suggestions for a traffic handling column. To get an idea of what traffic handlers across Canada might like to see in **TCA** and what they might find helpful in the pursuit of their favorite hobby, the writer decided the best method was to go to the various Section Communications Managers. Despite one or two negative reactions, the writer got the idea that there was considerable interest in starting such a column. A traffic column could become a regular feature in **TCA** if you, the traffic handler, will let us know if it's worth it.

Here are the ideas already put forward: the column could –

1) Provide information on the operation of traffic nets operating in Canada, their mode, frequency and times of operation;

2) Provide some statistical information on how much traffic a net and individuals handle (most people that responded with this idea thought it best to include only Canadian traffic; this is not as easy as it sounds, however it can be done);

3) Provide training tips and procedure guides as an ongoing program to acquaint handlers and newcomers of the procedures to follow;

4) Perhaps highlight a net or individual for outstanding service to traffic handling in Canada, or highlight a net each month and give some historical background as to its formation. (Not a bad idea, Net Manager, put a pen in hand and drop us a line about your net ... its history, method of operation, etc.)

These then are some of the basic ideas. I'm quite sure there are more, so drop the writer a line and we'll certainly see what can be done. Part of the column this month shows a format for statistics, and are the ideas of some 30 Canadian Amateurs. The type of statistics shown are thought to be of most use to Net Managers and Traffic Handlers alike. They could form a basis for some friendly competition among the various nets and help to promote traffic handling in Canadian Amateur radio and help gain some exposure with the general public through handling of third party traffic.

Statistics mean a great deal to some traffic handlers and don't amount to a hill of beans to another. From all indications, some guys and gals get a real kick out of beating other traffic handlers, while others get a kick out of participating in the nets and just getting the opportunity to pass traffic. Whatever is your bag, fine, you are the people to give this information to the writer.

In the past four months, I have been in contact with a good number of Canadian Amateurs, particularly those involved in traffic handling. Quite a number have asked why CARF does not sponsor traffic handling nets and systems. That's a good question, so I went looking for the answer. It didn't take long to find out that CARF sponsors an RTTY net called CARFNET. Some groundwork has already been done on a Canadian Traffic System, in the form of a paper proposing a method of transmitting traffic across the country. The proposal certainly has merit and would go a long way to providing a Canadian traffic system.

Why a Canadian Traffic System? What's wrong with the NTS? Depending on who asks the questions, the response varies as much as night and day. Let's take the questions one at a time and the writer will expand with his views.

Why a Canadian Traffic System? Well, why not? The traffic handled in this country is mostly Canadian, and with all the talk in this country of late of bringing home the constitution, why not bring home our traffic system? We can do as good a job, if not better, of running our own traffic system, although a good number of ideas have come out of the American Amateur society sponsoring the various traffic nets (and providing free information on same), some of the ideas are restrictive and need some overhauling.

What's wrong with the NTS? First let's look at what the initials NTS stand for, as put forward by our American brothers. It means 'National Traffic System'. This term implies that the system is in fact a National system, which it is not; it is an international system with its roots based in the U.S. of A. The rules by which the system operates are generated from there, but directly affect Canadians.

These answers will not please everyone, indeed, they are bound to get a few backs up. A few Canadians are tied to the NTS and really can't see how anyone would ever dream of trying to run a traffic system without the support of big brother, but they are also

EXAMPLE OF NET REPORTS

Net Call	Frequency	Sessions	Check-ins	TFC In	TFC Out	Percentage	Type	Mode
ABC	14.075	62	274	294	291	.989	T	CW
GBN	3.645	104	702	316	318	1.006	T	CW
CARB	3.650	62	159	405	405	1.000	T	CW/R

EXAMPLE OF A FORMAT FOR INDIVIDUAL STATISTICS

Stn Call	QNI	Orig	Sent	Rcvd	Relays	Dlvd	Totals	NCS	Liaison	CTS
VO1XYZ	62	13	67	51	15	9	155	12	10	239
VE2XYZ	51	7	51	17	18	11	104	21	25	201

probably the first to say Canada should bring home its constitution!

Going back to the third idea, we will, should the column continue, try to provide training tips here as well as on the air (in the form of slow speed traffic training nets and fast speed nets where warranted). Some of the topics covered should include (1) Checking into a net, (2) Proper net savvy (both Canadian Traffic system and the American version), (3) The CARF message form and ON AIR transmission of the message, (4) Representing your net to the next highest level net in the system, (5) Maintaining a proper traffic log, (6) Monthly operation reports to your Net Manager, etc., (7) Many other traffic-related topics.

At the present time, a test is carried out each weekend on 20 metres to get reactions from Canadian traffic handlers and other Canadian Amateurs. The results are far from conclusive, as we really have not advertised that such a test is going on. However, if you were to listen on 14.075 Saturdays at 1300Z, 1500Z, 1700Z and 1900Z you might just hear the call **CARF Central Region CW TFC Net Test CFN/C**. This call is also heard Sundays on 14.075 at 1300Z, 1600Z, 1700Z and on 14.078 at around 1930Z following the **CARF News Service Bulletin**.

Most tests are done at 15 wpm, however, if you check in (QNI) at a slower speed, the Net Control will go back to you at your speed. For the speed demons, sorry, we want to keep the test around 15-18 wpm. All Canadian Amateurs are welcome to check in with or without traffic.

So let us know what you think of the traffic column, and what you think of a Canadian Traffic System, backed by CARF and supported by you, the Canadian traffic handler. For those who wonder, yes it is possible to operate in both systems; we suggest that both groups work together. with members of both systems having pride in the job of providing a service to the public, while providing a valuable service for their own country and the Amateur Radio service within its borders.

[Comments and traffic reports should be sent to Ed 'Chip' Schoenherr VE3JLL, Box 149, Metcalfe, Ont. K0A 2P0.]

Notes on "Stats System"

In the Net Report, the amount of traffic out is divided by the amount of traffic listed with the NCS. The figure of 100% plus, is given where a relay is required within the operation of a net, because an addition message was required to clear the original (due to QRM condx, etc., another station had to relay the msg between the Originating station and the receiving station). The mode is self-explanatory except CW/R denotes it is a CW net operating at a **Regional** level.

Notes on Individual Stats

In the Individual Statistics, the traffic handled by a station is broken down into a number of categories; the titles are self-explanatory, but the Relay (QSP) caption is new to most. The relay caption has been included to recognize those individuals that are called upon to represent a local/area net, with the Regional net for that district or within the local/area net, that relays the message on. The relay station is an important part of the traffic system. These individuals may not carry a lot of traffic for delivery, or indeed originate a great deal of traffic, but without these individuals (the team player) a net cannot function properly.

The statistics should not split the messages received from those relayed through the nets; both are included. Do not include 'relays' with the total

'sent', as credit for retransmission is given in the 'Relays' section. In the 'NCS' column, a station is awarded three points for **each** time they operate as a net control, in the 'Liaison' section, any time a station acts as an appointed rep (as designated by an NCS) to another net (whether within the Canadian Traffic System or another traffic system) that station is awarded five points in recognition of the extra effort of their ability to function properly within the CTS or equally well in another system when requested by an NCS or net manager to do so.

Each time a station checks into a net nadling Canadian traffic and the traffic is routed through Canada only, that station receives one point for each check-in (QNI). It is hoped that once we get the Canadian Traffic System in full swing, a Certificate of Merit can be awarded to members. It would require a set number of points to be achieved over a length of time, plus regular participation in the Canadian Traffic System.

Warm WX Get-together

Members of the Palmerston and District ARC listen attentively to Bill Hardies' talk on his Oscar participation. Carl VE3 HH hosted this outdoor meeting at his cottage on Lake Huron. Going around the horseshoe ... with back to camera is VE3HIR (XYL of VE3EFX), VE3EOK, VE3 HLL, VE3HH, VE3IZH, VE3HOM, Ruthe (XYL of VE3HH, hostess par excellence), VE3IXU and VE3FTN (back, right side).

Bill VE3EFX of Tiverton, Ont., is explaining the use of the locator and globe for Oscar 7 and 8. (Bill is enthusiastically looking forward to Phase III. This new phase should increase the communication range from about 7000 km to 40,000 km! Worldwide DX without adverse propagation should then be possible. Too bad the launch was unsuccessful.)

Further information about Orbital Satellites Carrying Amateur Radio can be obtained from: (a) AMSAT-Radio Amateur Satellite Corporation, P.O. Box 27, Washington, DC 20044; (b) Project OSCAR, P.O. Box 1136, Los Altos, California, USA 94022; (c) Weekly AMSAT nets at 1800 UTC Sundays, 14,280 USB and on 3850 for the East, -200 UTC for the Central area, and 0300 UTC for western areas.

Give a warm weather get-together a try! Recipe for Success: 807's, cold cuts, 813's, OSCAR, bathing suits, warm weather and a cottage QTH provide a great environment for a club to get out of the summer doldrums. □

Garry Hammond VE3GCO

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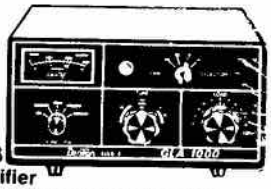
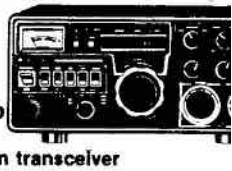


DENTRON GLA-1000B linear amplifier
Freq. coverage 80 to 10 meters, covers most MARS freq., RF drive: Max. 125, power consumption: 117 VAC 50/60 Hz 12.5 Amps, factory fused at 15 Amps. 234 VAC 50/60 Hz 7 Amps, DC input: 1 KW CW and 1200W PEP SSB. Final tubes 4D-50A tubes (6LQ6).



KENWOOD TS-700SP
all mode 2m transceiver
Covers the entire 2 meter band. SSB, CW, FM, AM, and semi-break in CW, side tone monitor, digital frequency readout, receiver preamp and 600 KHz repeater offset operation within all 2m repeater subbands including the new 144.5-145.5 MHz. 10 watts RF output complete with AC/DC power supply.

$ 1199. Free mic!!

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YAESU FT-207R
synthesized Handi-Talkie
144-148 Mhz, 5 KHz steps, output: 2.5W hi/200 mW low, 4 memories plus programmable offset, prior ch., memory band & auto scan, keyboard encoder freq. entry, 2 tone input from keyboard, keyboard lock, programs odd splits, auto. battery saver for LED, rubber flex antenna & 15 hr. wall charger.

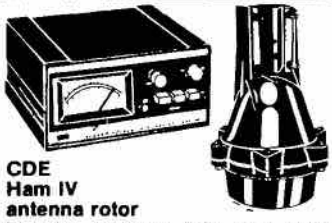
$469. Call for deal

DRAKE TR/DR7 general coverage digital R/O transceiver
Covers 160 thru 10 meters, reception from 1.5-30 MHz continuous, 0-30 MHz with optional Aux-7 modes: USB, LSB, CW, RTTY, AM equiv., true passband tuning, RIT, built-in RF wattmeter/VSWR bridge, SSB 250W PEP, CW 250W AM equiv. 80W. Power supply required for AC operation.

$2098. In stock

TEN-TEC
Century 21 CW transceiver
Full break-in, 70 watts input, all solid state, built-in speaker, receives CW or SSB but transmits CW only, overload protection, offset receiver tuning, adjustable level sidetone, built-in regulated power supply. Crystals are provided to cover the 80 thru 10 meter bands.

$ 539. In stock



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NOW $939.00

KENWOOD TS-180S
solid state HF transceiver
Covers 160-10 meters, digital frequency control with 4 memories and manual scanning, 200W PEP/160W DC 160-15 meters and tunable noise blanker, dual RIT (VFO and memory/fix) SSB, CW, and FSK, 13.8 VDC operation, and built-in digital display to show VFO freq. and difference between VFO and M-1 memory freq.

$1559!

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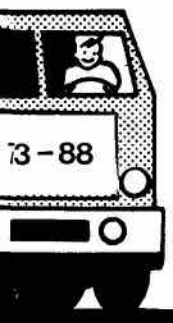

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YAESU FT-107M $1779
ROBOT 400 $1195.
HY-GAIN TH6DXX $399
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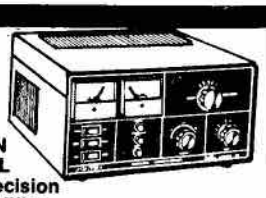

DENTRON DTR-2000L 2000W precision linear amplifier

Features a Broadcast proven 8877 tube, freq. coverage 160 thru 10 meters, covers most MARS freq., modes: USB, LSB, CW, RTTY, SSTV, power requirements: 234/117 VAC 50/60 Hz. RF drive power 125W max and 65W RMS min for 1 KW DC input. 1.8-21 MHz 2000W PEP.

$2089 In stock

YAESU FT-101ZD HF transceiver

Covers: 160 thru 10 meters plus WWV, modes: LSB, USB, and CW, built-in power supply, digital and analog frequency read-out, 6146B final tubes, RF speech processor, variable IF bandwidth, noise blanker, heater switch, VOX, attenuator 10 dB or 20 dB selectable.

$1299 List Call for deal!

YAESU CPU-2500RK 2m FM transceiver

With 800 PLL ch., automatic scan over entire 2m band, 4 memories, tone burst, 25W hi/3W lo, 13.6 VDC at 8 amps, freq. coverage 144-148 MHz. Keyboard mic allows remote input of memory or dial freqs., up/down scanning control, aux. repeater split selection to 4 MHz, and 2 tone input for autopatch or control link.

Call for Deal!

TEN-TEC Omni D Series B HF transceiver

Totally solid state, 200W all bands with 50 ohm load. Covers 160 thru 10 meters. Features digital readout, VOX and PTT, 4-position CW/SSB switch 8pole crystal filter, crystal calibrator, notch filter, zero beat switch, SWR bridge, adjustable sidetone, operates on 12 VDC for mobile. Full break-in CW.

SPECIAL $1559!

NEW KENWOOD TS-520SE High Quality HF transceiver

200 watts PEP SSB, 160 watts DC CW, 160 thru 10 meters, noise blanker, 3 position amplified-type AGC, RIT, 8 pole crystal filter, built-in 25 KHz calibrator, VOX, PTT, MANUAL operation, speech processor, semi-break-in CW with sidetone, low power tune up 20 dB RF attenuator and built-in speaker.

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BENCHER BY-1 iambic paddle

The Ultimate iambic paddle. Features solid silver contact points, full range adjustment, non-skid feet and heavy steel black textured base.

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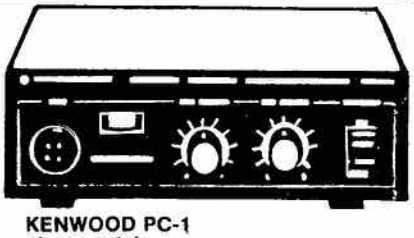
BENCHER BY-2 iambic paddle

The BY-2 has all the features of the By-1 but comes with chrome base.

$ 74.95



KENWOOD PC-1 phone patch

A matching phone patch for Kenwood equipment with NULL control, RX and TX gain control. Must be connected between a transceiver and a phoneline.

$ 82.95 In stock

KENWOOD TR-2400 synthesized 2m hand-held transceiver

Featuring: 143.900-148.495 MHz, operates on MARS, 10 memories, auto. memory scanning for busy or open channel, mode switch for standard repeater ± 600 KHz. offset, simplex and non-standard repeater splits, LCD digital readout, built-in touch tone generator with 16 button keyboard, and 1.5 watts RF output. Includes flex antenna with BNC connector, NiCad battery pack and charger.

$ 499. In stock

KENWOOD TR-7625 25W transceiver

Memory channel with simplex or repeater operation ±600 KHz transmitter offset, mode switch, full 4 MHz coverage on 2m (144.00-147.995), 800 channels, 5 KHz offset switch, MHz selector switch, digital fre. display, unlock indicator for transceiver protection.

$599!

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Sun & Mon appointment only

Packet Radio

(The second of three summaries of packet radio development. The next one will feature the Vancouver group's work. –Ed.)

Since the Montreal group was the first into packet it is not unusual that this group is the furthest advanced in this technology. A system has been fully operational since August of 1979, and has been continually updated since then. There are currently six stations on the net, with more working on modems and computers right now.

The net operates on 223.5 MHz currently, but a move to 222.3 is expected as soon as all of the stations have their crystals. Audio frequency shift keying is used, at 2400 bits per second. The mark tone is 2400 Hz and space is 4400 Hz. The modem is based on the Exar 2206, 2211 chip set, with a credit to Ted Balesta VE3CAF who first suggested the design. Having experimented with the design for almost a year now, it is capable of error-free transmission with S/N ratios of 15 DB or so. Its perfection is due to the efforts of Jacques Orsali VE2 EHP who 'massaged' the design to its present performance levels.

The radio is typically the Midland 13-509, running ten watts. It was chosen on the virtue of simplicity and price. The modifications to it required are simple and can be done in about thirty minutes or so. The interface to the radio was deliberately kept as simple as possible in anticipation of future users who may be either unwilling or unable to make extensive mods to the radio. Since just recently Ted VE3CAF has joined the Montreal team, we expect that he will make substantial improvements to the interface.

The local net is being used for man-to-man communications mostly, but lately the emphasis has switched to machine-to-machine transfers of programs, text files and the like. One user is currently writing a multi-user real time war game which will be implemented on the net soon. One of the unresolved questions is what principal use the net will be put to once it is fully implemented. Since this will depend on the character of the users, it will stay a question for some time yet.

The network includes a store-and-forward repeater as part of the system, and this repeater is currently functioning. It was demonstrated at the RSO convention in the fall of 1979. It receives packets which are flagged as packets for repeating, and rebroadcasts them a few miliseconds later. It serves the same purpose as a conventional two-metre job, i.e., it extends the range of a station using it. Since there are no cavities (it is a simplex device) it does not suffer from the usual problems of de-sense and split antennas. Naturally it is very efficient and as we say in the business, "it talks far".

The repeater operates on the same frequency as the rest of the net and only repeats packs which are flagged to it. In this way we find two stations often using the repeater while two others who are close enough use simplex, all on the same frequency.

In addition to its conventional role, Digipeater, as it is called, offers other services to the users. By sending a pack to it (as opposed to through it) users can get a 'broadcast message' which provides important information of immediate interest, system shut-downs, protocol changes and the like. The message can be changed remotely by the system operators, and is password protected.

Users can also use the Digipeater to check out their system. Using the Test facility, a packet sent to Digipeater will be transmitted back to the station the same way it was received, that is, with or without errors. By accessing the status file of the repeater, users can see the number of packs and acknowledge which have gone through Digipeater, as well as those which were 'direct' and bypassed it. System operators can use this function for statistics on usage, and throughput.

The latest and perhaps most exciting development is that we now have a single board

in Montreal

computer/terminal working. It is based on the Motorola Chroma II kit, sometimes called the TV Bug. This low-cost ($300 or so) device will implement the full packet protocol in PROM, and requires only a keyboard, a TV set and a compatible modem to run. This means that the cost of a complete packet setup is reduced by a factor of about ten. We figure about $500 including the radio would be the maximum cost for someone who had nothing to start with.

For those people who have micro-computers already, TV bug will be able to act as a front end processor, which will handle all of the communication chores for a host machine. Once this is running, we can see some very powerful and exciting possibilities for distributed processing! Watch for more information on this exciting breakthrough.

The protocol currently used is a simple 'Aloha' type random access system. It has been enhanced, however, and uses carrier sense and priority acknowledgements.

Obviously a full description of the protocol is beyond the scope of this article, but those who are interested in the inner workings can contact me by 'phone.

Many elements are as yet optional, being on the user side of the interface, routing pacs to printer or disc etc., is currently supported allowing a user to watch the evening's activities at his leisure. Same with the Copy All Pacs, Copy My Pacs option.

In the near future we expect a fairly large influx of new users due to the imminent availability of the TV Bug design and our software on PROM. Since it serves not only as a computer but a video terminal as well, it eliminates two of the most expensive elements of a packet system, for about $300 all up.

We are building a new digital repeater using a single-board Z 80 based device which is standalone, and by the month of May we should have it on the air in a location which will allow us access to Ottawa. Ted VE3CAF has acquired a TV Bug and our first tests will be with him.

We also expect that Ted will be able to help us out with a new modem design which operates at 9600 bps although at the expense of S/N ratios. It looks as if we can find another repeater computer as well, which could be installed in Ottawa if the demand warrants it. We could then have our repeaters talking to each other as well.

That sums it up from this end, and I would like to thank Hugh Pett for undertaking the coordination of the packet newsletters. I am looking forward to seeing the 'state of the art' within other groups in Ottawa and Vancouver, to name just two.

The people in Montreal responsible for the development of the system are Fred Basserman VE2BQF, packet software; Norm Pearl VE2BQS, TV Bug development; Jacques Orsali VE2EHP, modem; Bob Rouleau VE2PY, protocol Digipeater; Bram Frank VE2BFH, Digipeater Statistics Software.

[The technical details of the protocol appear in the original papers on packet radio published by CARF. They were omitted here due to space limitations. The original series of three papers and subsequent issues may be obtained by sending $5.00 to CARF Inc., Box 356, Kingston, Ont. K7L 4W2.]

SIDEBAND ON 11M

Watch for an FCC announcement proposing more sideband channels on the 11 metre Citizen Band, along with removal of the skip working ban plus the use of VFOs.

DOC PUBLICATIONS

We recently came across several DOC publications of interest. One is of primary concern to the boating public, entitled 'Attention Mariners – Maritime Mobile (VHF) Radio Safety Service'. Two others deal with radio/TV reception and interference problems: one is titled 'For Better Television Reception' and the other is 'How to Identify and Resolve Radio-TV Interference Problems'. These publications, in pamphlet form, are available in both official languages from your local DOC office.

Welcome to Amateur

How a vigorous and well-organized club trained new Amateurs and got them on the air with 'follow-up' cooperation and fellowship.

This is a true story about a friend, a very special uncle, and our Radio Club.

We met at the annual Pacific National Exhibition which takes place every August in Vancouver. The local radio clubs participate for two weeks with the special station VE7PNE which brings Amateur Radio to thousands of people each year. When Tom came in to visit and look over the gear, it was easy to see that he was already bitten with the bug. He said that his Uncle Frank in Little Rock, Arkansas, was WA5CJN. He had visited his station several times. We invited Tom to come around to our club in September and join the classes.

Meeting night came around and the hall was packed with Amateurs, and prospective Amateurs. We made sure to have some gear around to stir up those radio juices and also some willing members to speak about our hobby. Tom jumped into the act right away, thanks to 'Uncle Frank'. We were trying something new this year. A special course for those people who had some previous training or were learning on their own. Could we speed up the process and get those tickets in three months rather than the usual six months? Would the students be willing to sit in for five hours of theory each week and another hour and a half of code and regulations? Yes, sir!

The first ticket in Canada is not too far removed from the General ticket in the U.S.A. It consists of twelve questions requiring an essay type answer rather than the type with several answers to choose from. The examiner picks your best ten answers and you have to have 70% to pass.

Each night my partner, Wally VE7CJT, would take the students through the code and radio regulations. He has that special capacity to be able to explain complex rules and operating procedures so that you understand easily and want to be a good operator.

After a break for coffee each night, we hit the theory. First a review session on basics, then into lots of circuits and review questions. Each student had to answer about thirty questions at home each week on the discussion of the week. We asked the questions on a strict rotation basis, so that each student made sure to come prepared for the class. Tom would stir with anticipation at the thought of answering a tough question. I let him conduct some of the technical discussions in my place, as he had had some electronics in the Navy. Whenever we were all stumped for an answer to a question we all got into the books for an answer. We decided that we would try to use the correct terminology in answering questions as this would help us later in understanding technical publications.

Everything went smoothly until October, when seven of the group decided to write for their tickets. All seven passed the theory and regulations. The code would have to wait for some as this could be written anytime. Within a short time all would proudly wear VE7 after their names.

Tom was kicking himself for not writing then because as he was sure that he could have passed, later, he said that he wanted to be really well prepared and go for a high mark rather than just a pass. During the next month he bore down on the code and to my surprise, he arrived one night with the news that the code was his. Ten words a minute for three minutes with no errors. He said that the inspector let him have a cup of coffee to calm his nerves and that did it.

The Burnaby Amateur Radio Club has a local reputation for putting up towers. We assist Amateurs who are handicapped or senior citizens with these projects. The students are invited to participate in this work and gain some valuable antenna experience in the process. This is under the strict guidance of Bill, VE7CSD, and Mike VE7CEW.

Radio, Tom!

By 'Lou' VE7CGE

Since Tom is an electrician and used to climbing, we invited him to a tower-raising at VE7FJs place. The base was in and we were after a club record for putting up the remaining sections of heavy-duty tower. Our best time was 38 minutes. If we pulled together and organized our work better, we could surely improve on that. After all, we had already put up about eight towers that year. The equipment was better, the men were more experienced, and most important coffee and doughnuts were waiting at the bottom when the last section was up.

Twenty-two minutes and a club record later, the last section was up and the coffee poured. Next, the beam went on and the cables were tied on ready for a first contact. This is an occasion, as a new beam has to always prove itself.

Tom had already mentioned the project and a frequency to Uncle Frank in Little Rock. We fired up the rig and guess who was waiting. Yes, Uncle Frank WA5CJN!

The next week, Tom visited the shack again and had a good sked with Uncle Frank who was working portable at the home of Tom's parents at Pine Bluff, Arkansas. The station was of course under the control of Larry VE7FJ as Tom didn't at that time have his ticket.

Next swap meet, there was Tom, looking for antenna parts, cables, and pieces. The antenna questions were becoming top priority in the classes now. I thought that the students were getting eager to get on the air.

Finally, the big day approached. January 16th, Exam day in Canada. All the exams start at the same time in Canada. 1700 Z. That is so no one will relay the questions and answers across the country. After the exam, we held a debriefing session to cover the questions and answers. That way, each student could evaluate his answers to see if he was on the right track. The local radio instructors use this information for a training net on 75 metres. This way students can listen in on their receivers and get some useful tips on the quality of answers required.

Now it was a waiting game. Tom dug a hole in the backyard for a tower base. Then he set the ground rods and poured the concrete base. The rig was already bought, a Christmas present, I think, by a thoughtful XYL. The dummy load kit was assembled. Only the licence and an antenna were needed now. Some students were reporting in with their new calls. It was an exciting time. Surely, the postman would bring the good news! At last it came; a quick trip to the DOC and VE7FFB was Tom's.

The fellows at the radio club had agreed to put up Tom's tower but only if his station had a call. We hadn't counted on raising the tower at the beginning of February, but a promise is a promise. There certainly could be no excuses now. On Saturday morning, Tom's tower would go up. Tom lives about fifteen miles from the club. We had a talk-in all the way on two-metres as surely we would never find his QTH with no antennas in evidence. There were Bill VE7CSD, CXN Dennis, FJ Larry, CMN Mike, CEW Mike, EW1 Dave, CY1 Eivand, CGE Lou and finally FFB Tom. The club present to Tom was the tower raising.

It had been raining when we left home at 8 am. It got worse as we approached Tom's QTH. Would we postpone the tower raising and let Uncle Frank down on the first QSO? Not on your life! We set a new club record for raising a complete tower, antenna and rotor with cables. The whole thing was up in 75 minutes. The rig was attached and the dummy load was used to tune the final. Now a quick listen for a clear part of the band. Check the SWR Flat across fifteen metres. The shack full of friends. Now, lets see. "WA5CJN, WA5CJN, WA5CJN, de VE7FFB, VE7FFB, VE7FFB...."

TV Trial Program

The DOC's two-way TV trial program being held in Manitoba in conjunction with that province's telephone system is underway with about 100 homes hooked into the videotex or telidon equipment. The overall program has received a rude shock, however, with the announcement by Canadian telephone companies that they are withdrawing from further participation. The break reflects the escalating battle between cable TV interests and the telephone companies for the millions to be made in the future in this new telecommunications area.

QRP | A Personal View

By Victor Maddalena VE1AEN

Anyone can work the world with a kilowatt, but I and many Amateurs have discovered we can also work the world with one watt. More often than not, when you mention QRP the usual response is, "That's kid stuff, you might get a couple of local contacts, but nothing great." This article may clear up some of the misconceptions about QRP.

My rig is a Heathkit HW-7 and it churns out just over one watt. With this one watt I have worked 20 DX countries, 25 states and VE's 1,2,3 and 7.

My antenna you ask? No, it is not a delta loop or a yagi up 40 feet on a tower, just you basic dipole. I usually have my dipole strung around my ground floor apartment, tied onto what ever will support it, door knobs, curtain rods etc. A 40 foot tower would be fine but I would probably lose most of my precious watt through the coax.

Patience is the key (no put intended) to successfully working QRP. Listen for the stations calling CQ. At least this way you know that after he sends "CQ,CQ de...." he will be listening for stations answering his call. By this method, under good band conditions you can easily manage five or more QSOs per hour. The RST reports you receive working QRP can sometimes be surprising. It is not unusual to receive 569's, 579's from Europe or the mid-west.

The nicest contact I've made QRP was AJ3AA on 20 meters. He called CQ; Myself and a thousand other stations answered him, all eager for his QSL. Yes, you guessed it, he answered my QRP signal and gave me a 579. Needless to say, I was surprised he answered my signal over the QRM. Who says QRP is "kids stuff"?

If you are interested in trying QRP here are a few helpful hints I have learned along the way. First, use a good receiver; "ya can't work em if ya can't hear em!". Second, keep your coax short; under thirty feet. This way the loss through the transmission line will be reduced to almost nothing. Try and keep the SWR to a minimum. When you work QRP you want all your one watt to radiate from the antenna. Experiment with different types of antennas and find one that suits your needs.

When it comes to QRP rigs, you don't need much. There are many commercial models available on the market. If you like to build your own, plans for QRP rigs can be found in radio magazines and handbooks.

My HW-7 is equipped for 40,20 and 15 metres. I don't use 40 because of the QRM and 15 on my rig has never worked since I bought it, so I work the 20 metre band. There is lots of DX,W's and VE's on 20 to keep the QRP'er busy for a long time. If you are a city dweller like myself, 80 metres might be impractical because of the length of the antenna necessary to work 80. A transmatch could solve this problem.

I would not recommend using a crystal controlled transmitter (unless you have lots of different crystals), simply because you have to be able to go to the stations calling 'CQ'. This is one of the drawbacks of operating QRP, you can't call CQ. You can if you like, but because your signal is not strong to begin with, your CQ will be passed over. A VFO controlled transmitter will enable you to move to the calling stations.

One nice thing about most QRP radios is that because they are small and can be run off a lantern battery, they make great portable rigs. My HW-7 battery, key, headphones and antenna all fit neatly into a small suitcase. It is nice for vacation time or just a day in the country. Also, because the output of your QRP rig will be so small, the chances of causing RFI are greatly reduced. This can be helpful to Amateurs living in densely populated urban areas.

I shouldn't paint such a rosy picture; QRP can have its trying moments. For example, when you hear a rare DX station calling CQ, but he can't hear you. With patience and perseverance you can still snag a few of the rare ones. It would be a cinch with a hundred watts, but there is that sense of satisfaction when you work that KC4, AJ3 or UK6 station with one watt.

With QRM becoming a problem as the legal power limits keep rising, you can kill two birds with one stone (or one watt), by reducing power and still working the world, QRP. □

This is 4U

If you think all those Canadian call prefixes from CF to VY are confusing, just consider the problem posed by the '4U' prefix. To date, VE3GCO has worked and confirmed ten 4U **calls** in five different **countries** on four **continents**.

Officially, 4U is the International Telecommunications Union callsign prefix allocated to the United Nations.

4U1ITU is the best known 4U call. Amateur radio station 4U1ITU is located in one of the headquarters buildings of the ITU in Geneva, Switzerland. It has a separate distinctive DXCC country status. Should you visit Geneva, take your VE licence and contact Ted Robinson F8RU, who will be pleased to acquaint you with the operation of this special station.

I9RB/4U was operated by Paul Bavassano I1RB and I1RBJ in 1968 from the I.L.O. International Centre for Advanced Technical and Vocational Training in Turin. This operation had no special country status and counted as Italy.

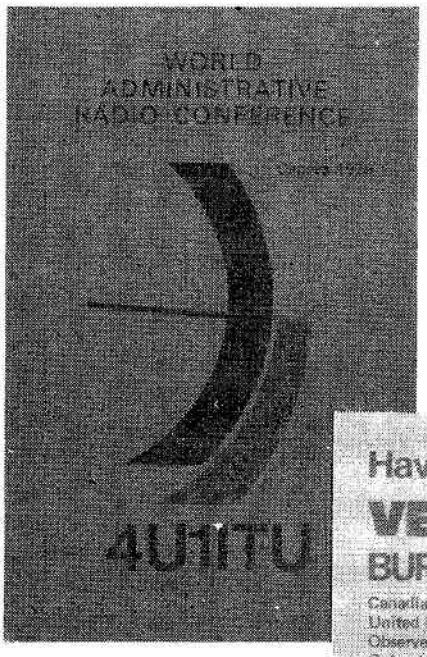
SM2ALH/4U and SM3GUE/4U operated their calls from Baluza. This counts as SU, i.e. Egypt from zone 34, Africa. Various foreign Amateurs with the U.N. Emergency Forces have operated portable 4U at their temporary places of duty.

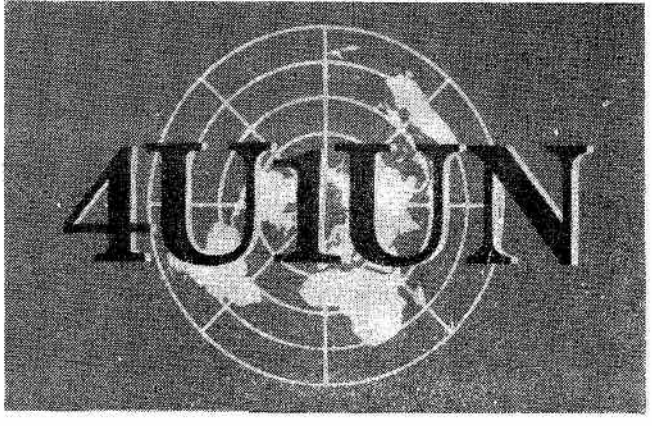
VE1AMA/4U Bert Amero was with the Canadian contingent of the U.N. Observer Force in the Golan Heights. Although occupied by Israel, this station was in Syria and thus counts as YK for DXCC and zone 20, Asia.

4U1UN from the U.N. Headquarters at New York City is the call of the Amateur Radio Club of the U.N. Staff Recreational Council. This station has had separate country status since October 1978. The club custodian is Max De Henseler HB9RS/W2; QSL manager for the station is W2MZV. Should you like to operate 4U1UN, contact one of its regulars, N2KW.

So there you are VE's... a real challenge ... 4U! □

Garry Hammond VE3GCO





June exam analysis

The June exam results were disappointing compared with some of the previous ones. Of the 492 who wrote the Amateur ticket, only 80 got their certificates; which works out to a mere 16%. It should be remembered though that many of those writing only tried one or two parts of the three-part tests. On the theory part, out of 436 who wrote it, 159 or 36% passed. Out of 322 who wrote the regulations, 215 or 67% made it. Two hundred and twenty-seven tried the morse but only 79 or 35% passed.

Only 49 (22%) out of 219 who wrote all or part of the Advanced diploma tests were issued their certificates. 76 out of 203 (37%) passed the theory, 115 out of 144 (80%) made the regs portion, but only 47 out of 108 (44%) read the morse test okay.

The digital licence picture was better... 100% of those writing passed.. that is, three out of the three who wrote the test. (Incidentally, U.S. sources quoting 300 digital operators to date are a bit wide of the mark... it's more like 100.)

South of the border the exam picture is different... but for somewhat suspect reasons. The steady climb in the success rate which brought an increase of 1,800 new licences in June alone and brought the total to 385,625 was almost equal to the number issued in eight months of 1979. It can only be attributed to the open sale of exact exam questions sold as 'study materials', according to HR Report. That publication notes that "there is considerable feeling that the increased pass rates are due to memorization rather than understanding, which would result in unqualified applicants receiving licenses and the license itself being cheapened as a result". "The FCC's rules," it continues, "apparently have no provisions for protecting the security of its examinations."

ARRL VOTES FOR 40 & 20 METRE EXPANSION

ARRL Directors have voted to petition FCC to expand U.S. 20 and 40 metre phone bands. Extra class is to have 14.150 MHz up, Advanced 14.175 MHz up and a General all above 14.225 MHz. On 40 metres they will ask for extra class phone on 7.075 to 7.100 MHz.

- HR Report

CARL SEZ...

A disaster in Mississauga

"Who cares?", "That's there and not here!", "What's that to me?", "We just don't have problems like that here". Such statements just may have been common in Mississauga **before** the recent disaster situation. Problems like that seem very remote **before** a disaster occurs.

CARFCOM is the organization within CARF dedicated to providing local emergency-type communications. This means all types of situations including parades, festivals and just about any kind of community activity. The CARFCOM Communications Plan provides an organizational plan that can be implemented on the local level.

As if the event in Mississauga was not enough, the events surrounding the recent Mt. St. Helens volcano eruption were felt across vast areas of North America. These two disaster situations should illustrate clearly the need of active CARFCOM organizations in all communities.

At first glance it would seem that it would be a very big job to get a CARFCOM group going. Not so! The Communications Plan provides the outline. Why use the Communications Plan? The answer is simple and basic. The Plan heads all CARFCOM groups in the same direction, making it easy to coordinate or integrate groups to handle a larger situation. For one thing, the Plan suggests a frequency management plan that hopefully would make the job easier for everyone.

Where to start? Simply drop CARF HQ a note requesting a copy of the Communications Plan. Copies are ready **now** for mailing. Questions? Write to the Acting Manager of CARFCOM, VE7AFJ. Actually, what is really needed is a CARFCOM Manager who is in the central part of the country. Are you interested in local nets? This may be a challenging job for you.

At this point in time, there is nothing that is cast in brass in CARFCOM. If you or your net are interested in CARFCOM and its goal for providing local communications nets, please contact the Acting Manager as soon as possible.

In its most simple terms, CARFCOM is a Canadian organization dedicated to providing local nets for Canadian communities. □

CARFCOM is a part of **CARL** which is the overall communications organization of **CARF**. We are Canadians who want to do a job for Canadians.

de VE7AFJ

Our 40M Phone Band

There has been a tremendous surge of activity on 40 metres since the 50 kHz phone band below 7100 kHz was finally made available in Canada. I seems as if Canadians have rediscovered 40 metres and its excellent propagation characteristics, half way between 20 and 80 metres.

Already, many Canadian Amateurs have worked overseas DX stations in the 7050-7100 kHz band, especially last spring when DX conditions were very good. Overseas Amateurs, who cannot operate above 7100 kHz, were delighted about being able to work Canada for the first time on their own frequency, and they were lined up ten deep to work Canadians. Canadian Amateurs also worked each other in great numbers, enjoying the excellent medium range skip between provinces.

It looks as if 40 metre phone allocation has been a big success story for DXers and others alike. Naturally its use was discussed at length at the Hamilton Amateur Radio Symposium last May.

The Symposium was told that some Amateurs, who do not realize that Amateurs outside the Americas are restricted to frequencies below 7100 kHz, are operating nets with traffic listings and checkins by district, similar to those on 80 metres. Contacts are established and traffic is cleared using adjacent frequencies also in the 7050-7100 kHz band.

It was also informed that others, realizing that Amateurs overseas are restricted to 7050-7100 kHz for DX phone operations, have chosen to make their local contacts on frequencies above 7150 kHz so as not to interfere with DX operations. Since the phone band was made available in Canada, some Amateurs said that there was more Canadian activity above 7150 than ever before.

The question the Hamilton Symposium faced was: how could Canadian Amateurs make the best of this new, very narrow, band?

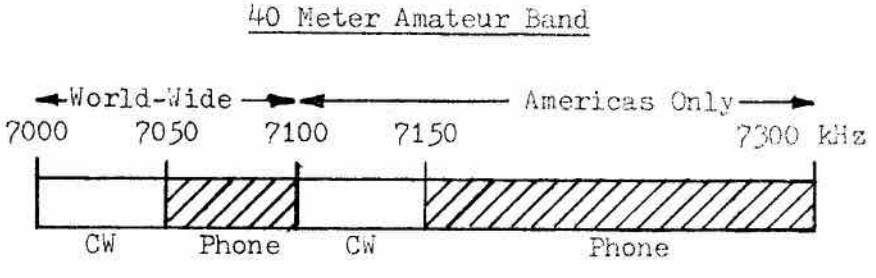
As one would expect, it started with a discussion of broadcasting in the 40 metre band and the need for Amateurs to be aware of the ITU WARC '79 footnote on this matter. Then, getting to the nub of the question, it noted that in the fall, winter and spring months DX propagation would be ideal in the 7050-7100 kHz band and that it would not be fair to Amateurs in other parts of the world and those in Canada who wanted to work DX to use up the band for local or regional contacts. It was agreed that the 7050-7100 kHz band was an important DX window and that its use for DX should not be frustrated by local QSOs when the band was open.

Accordingly, the Symposium **recommended** that Canadian Amateurs should respect the use of the 7050-7100 kHz band for DX phone when it was open and refrain from local QSOs (under about 1000 miles) and that this recommendation should be publicized by both CRRL and CARF.

The overwhelmingly positive response we received from overseas DX stations last spring may be replaced with an equally negative response if we are not careful. We should take the lead from those Canadian Amateurs who have studied the problems and recommend a way to get the most out of the band and conduct our local contacts and nets above 7150 kHz whenever the band is open for DX.

It is a tremendous privilege to be able to operate in the world-wide phone band on 40 metres. Let's show everyone that we Canadians have the sense of responsibility and fairness to deserve that privilege.

Bill Wilson VE3NR
President CARF



We need to advertise

We need to advertise. I suspect that most of the general public in Canada, and a great number of the members of the press, are either not sure or simply don't know what an Amateur Radio Operator is. Confusion between our service and the General Radio Service appears to be the main reason for this ignorance. As Amateurs we are all frequently asked if we still use our CB or other such embarassing questions. I had one of the local 'good buddies' ask me where I bought the fabulous CB rig I was using during a local walkathon. I am reluctant to print my answer to his question but, needless to say, he realized my system was different when I dialled into a local autopatch to call home.

That was advertising of a sort, but I have to wonder if that is the extent to which the general public views us, if they are aware of our existence at all. Are we technical wizards delving into the secrets of radio, to be left alone or talked about in hushed tones? I recall my grandmother saying, "Oh, so-and-such is a Ham. I always thought he was kind of funny. Our furnace would go crazy whenever he used his radio." She didn't know I was a 'ham' at the time. Her opinion didn't change much when I got around to telling her about my hobby, but she did start treating me as if I had cleaned a septic tank the night before.

Something must be wrong if our image is so veiled that not even our relatives are quite sure of our sensibilities when it comes to radios. Even professionally our image is tarnished. I work for the CBC as a Transmitter Technician. This is a job perfectly suited to an Amateur. As long as I don't mention my hobby around the maintenance crew, I am treated with the respect due my position. Little. However, if I were to mention my ties with the local Amateur population, my stature descends another ten points.

Family life is threatened. "How does your wife put up with it?!" She's an Amateur. For her sake I rarely mention that.

My last point. The term 'ham' is obsolete. It still applies but it seems to apply to all forms of public radio, Amateur or GRS. We are Radio Amateurs. Let's say so. Everywhere.

Recently, in Ottawa, a local Amateur was run off the highway while driving home from work. VE3GOJ was pinned in his car, which was upside down in a ditch for over an hour while Ken VE3IHX, an employee with Ontario's Ministry of Transport, tried to find him. Had it not been for Amateur Radio, it is possible that the victim could have perished. Who got the credit? Why, CB of course. The staff writer at the local newspaper who covered the incident didn't know the difference. This is only one case. Are there more? You can bet there are.

The onus is on us to educate the masses. If we don't, no one else will. We need ideas on how to do this. If you have any, let me know and I'll print them. Above all, let your fellow man know you are there, and you are as sane as the next guy, for what that is worth.

Advertise. □

-VE3ARS

News Briefs

PERSONAL COMMUNICATION

Cable TV companies are cooking up a method of allowing customers to use newly developed two-way speech facilities on their cables to open up a type of random access personal communications resembling on-the-air CB. It would not, of course, require a licence. Further planning would hook up CB repeaters and thus individual CB sets to this system, which would extend the range of CB communications. A trial of the idea is being held in the Brockville, Ont., cable system. The addition of a means of discrete addressing would provide some interesting sort of competition with the telephone companies.

CARFNET

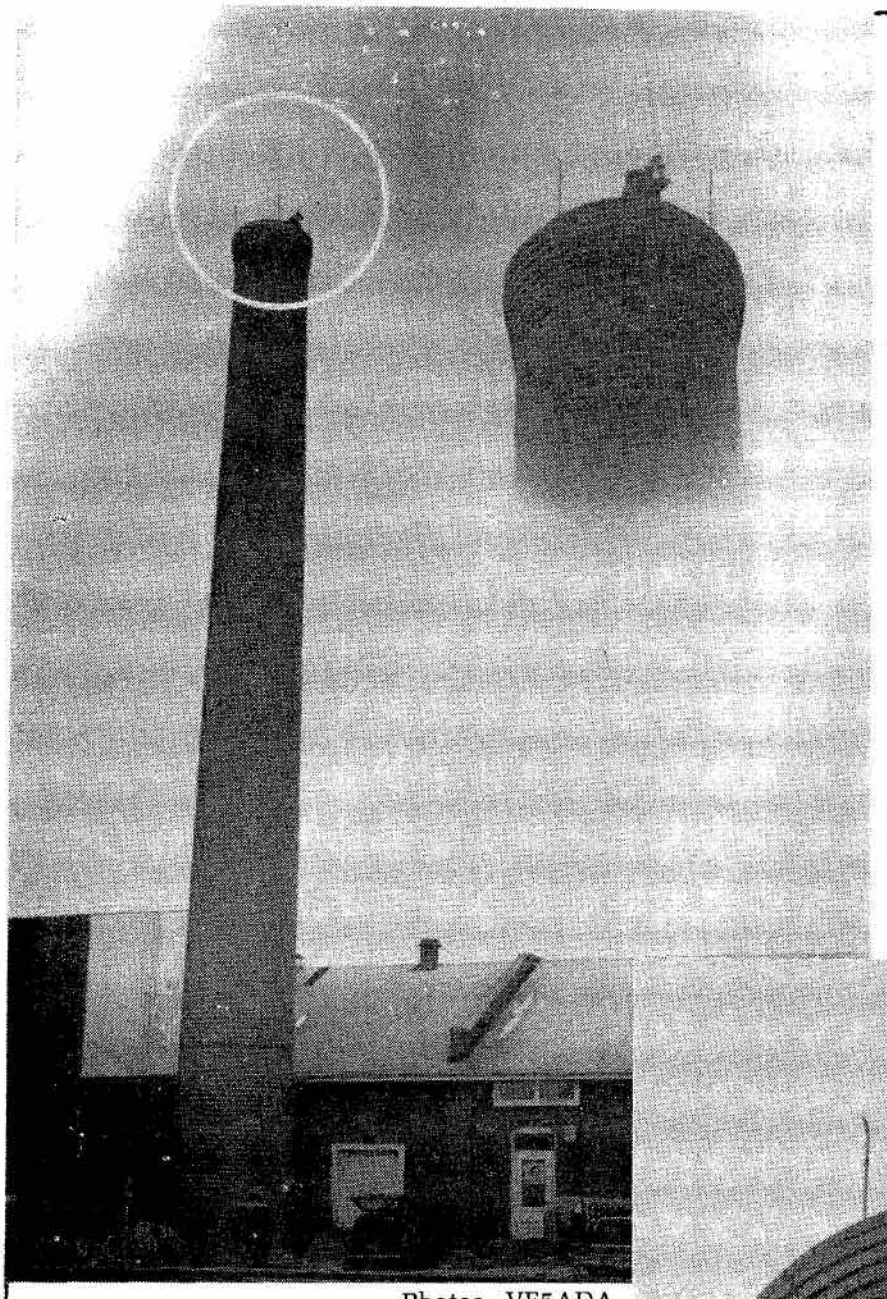
CARFNET, the Federation's 20 metre teletype traffic net, has added a mid-week session which will meet on Thursdays at 0030 Zulu time. That corresponds to Wednesday evening across Canada. The frequency is 14.078 MHz and those stations using five level Murray code are welcome. CARFNET also meets on Sundays at 2000 Zulu on 14.078 as well.

RSO CONVENTION

October 3-5, RSO Convention is to be held at the Prince Hotel, Toronto. For information and registration write RSO Convention Committee, Box 997, Station B, Willowdale, Ont. M2K 2T6.

Way up high!

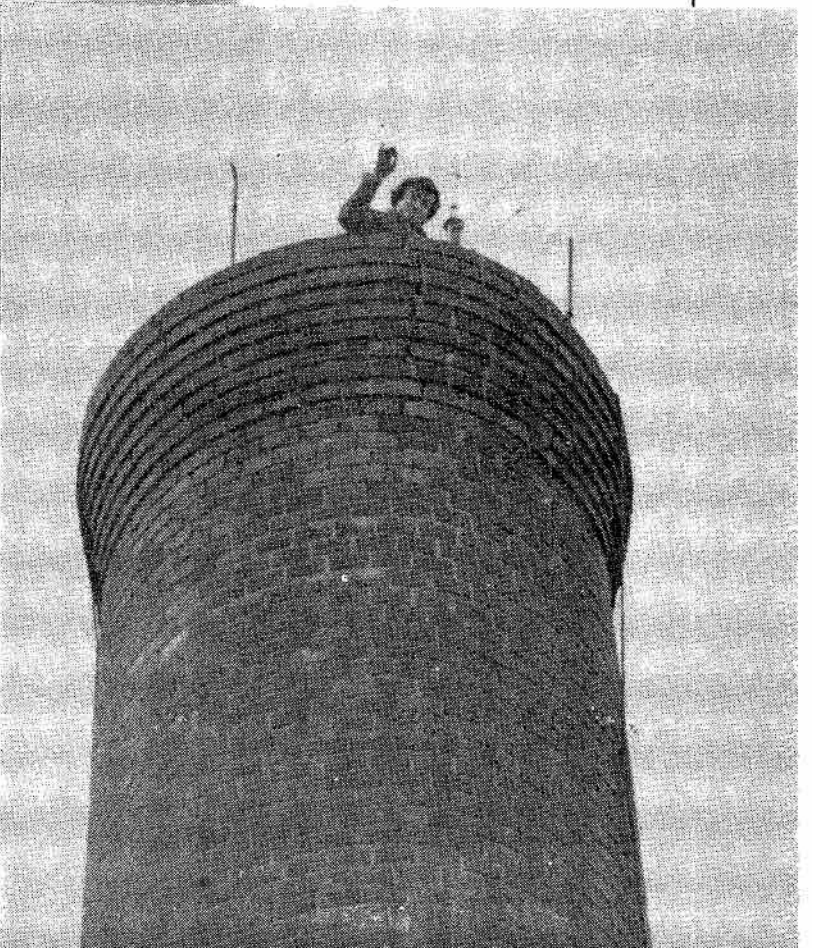
VE5WEY repeater (146.10/146.70) has its antenna mounted in a rather unusual place. In order to get some height to cover the flat prairie land in southeast Saskatchewan, the antenna was installed on the 32 metre high stack of what was once Weyburn's power plant. Andy VE5ADY fearlessly climbed the inside of the abandoned chimney knowing that, should he fall, his landing would be cushioned by one metre of soft bird droppings!



Photos: VE5ADA

Above: Andy VE5ADY performing the installation on the Soo Line Historical Society Museum smoke stack.

Right: Installation is completed to Andy's satisfaction.



Auto-Alert Tone Encoder

By F.G. Clark Forrest VE3BOF

Various Amateur clubs have recently become involved in the Auto-Alert Emergency Warning System. There have been many different tone encoders designed to decode incoming tone signals on the 2 metre FM band. Three examples of these are the designs of Harold Nowland W8ZXH and Stan Briggs W8 MPD of Hal-tronix, Glenn McMichael VE3CGU and Dave McCarter VE3GSO. Although they differ in design, they all use the standard 941 Hz frequency. The duration of the tone is usually three to four seconds, but it can be varied to suit the particular group being alerted.

There are various ways of producing a stable 941 Hz tone. In this article I will present two simple, low-cost circuits using easy to obtain components.

The first circuit consists of a 7400 TTL oscillator followed by a buffer stage and finally a 7490 divide-by-ten counter.

Referring to Figure A, gates U1A and U1B of the 7400 form a square-wave oscillator running at 9410 Hz. The operating frequency is determined by the values of C1, R1 and R2. The third gate, U1C is used as a buffer to provide isolation between the oscillator and the divider. This may not be necessary, but was included to ensure frequency stability. Besides, this way you waste only one of those nifty little gates.

U2 divides the 9410 Hz oscillator output by ten to produce the desired 941 Hz tone. Frequency stability is the reason for using an oscillator/divider circuit. If the oscillator does drift, the amount of drift will be divided by a factor of ten. Therefore, if the oscillator drifts 100 Hz down to 9310, the output of the 7490 will be 931 Hz. This is a drift of only 10 Hz and is still well within the pass-band of the Auto-Alert decoder.

An output level control is shown connected to pin 12 of U2. This is necessary to reduce the tone level to that required for mixing into the microphone circuit of a 2 metre transceiver. Component values in the attenuator circuit were selected to minimize distortion of the square-wave output signal wave form.

Power for this circuit is provided by a 7805 regulator chip. The regulator requires a minimum 10 volts at its input. For mobile use, this will work well as there is usually 12 to 14 volts or so available.

As for components, capacitor C1 must be a good quality mylar for frequency stability. For ease in setting the oscillator frequency, R1 should be a multi-turn potentiometer. A sealed unit such as those made by Bourns will prove reliable as they are protected from dust and moisture. R3 can be a miniature single-turn trimmer again preferably of the sealed variety.

The frequency range of the prototype of this circuit was 860 Hz to 1060 Hz, while output level can be adjusted anywhere between zero and 3.5 volts peak-to-peak.

The second circuit consists of a 566 voltage-controlled oscillator IC. See Fig. B. The main frequency determining components are C2, R3 and R4. Power is supplied by two 9-volt batteries wired in series. D2 provides reverse polarity protection. The voltage supplied by the batteries is regulated down to 12 volts by R7 and D1.

The LM566 used in the prototype ran reliably on 10 volts, but 12 volts was chosen for insurance. This oscillator runs at 941 Hz and is very stable. The prototype showed a drift of only 4 Hz as the surrounding temperature was reduced from 22 degrees Celsius down to zero. The square-wave output of pin 3 is fed to the output attenuator R5 and R6, through a .1 capacitor C3 to the microphone circuit of the transceiver. A sine-wave signal can be obtained by connecting the circuit shown in Fig. C to pin 4, the triangle output of the IC. In this case, leave pin 3 unconnected.

Capacitors C1 and C2 must be good quality mylar capacitors for frequency stability. Potentiometer R3 can be a small multi-turn unit of the type used in Fig. A, except the resistance value must be 5K in this case.

Both encoders should be housed in aluminum boxes for shielding and mechanical protection. The style of cabinet will of course depend on where the unit is to be used: mobile or base. Printed circuit board construction is preferrable for neatness and mechanical stability. The adjustment procedure is the same for both circuits. If a scope is handy it is a simple matter to set the operating frequency. If not, find a friend who has an Auto-Alert decoder. Couple the output of the encoder to the input of the decoder.

Reduce the output level of the encoder to between ¼ and ½ of full output. The next step assumes that your friend's Auto-Alert decoder has previously been adjusted to the correct frequency, namely 941 Hz. Adjust the frequency pot until the light-emitting diode on the decoder board lights up. You will find that the LED remains lit through a number of turns of the control. Count these turns and adjust the control to the centre of this range.

The encoder can be wired to the transceiver in the same manner as a Touch-Tone TM pad. A phono jack can be installed on the rear panel of the rig and a short length of shielded cable, such as RG-174/U, connected between it and the audio input pin on the microphone connector.

Have a friend listen to your signal as you depress S1 and the microphone button. Gradually increase the output level until a slight amount of over-deviation is detected, then reduce the setting slightly for a clean signal.

The two circuits presented here should provide a low-cost method of generating the necessary 941 Hz tone to activate any of the Auto-Alert decoders using this standard frequency. □

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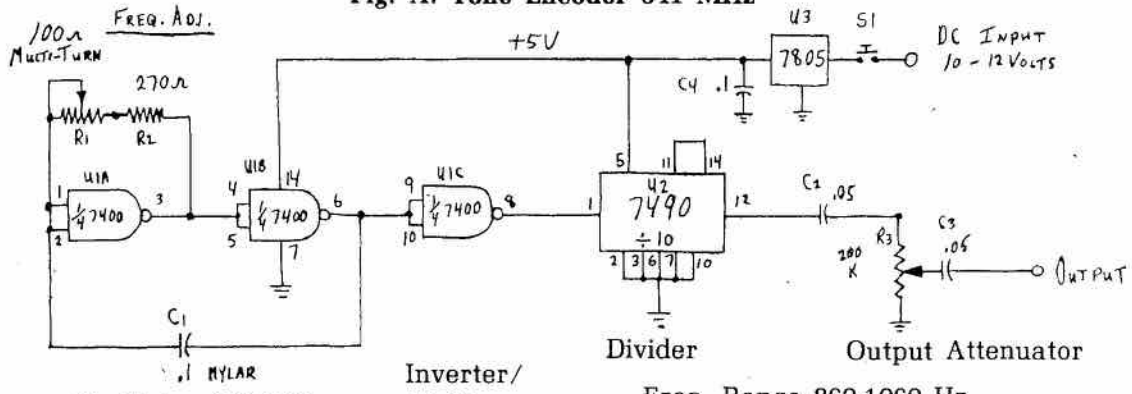
Hensall, Ont. N0M 1X0

Fig. A: Tone Encoder 941 MHz



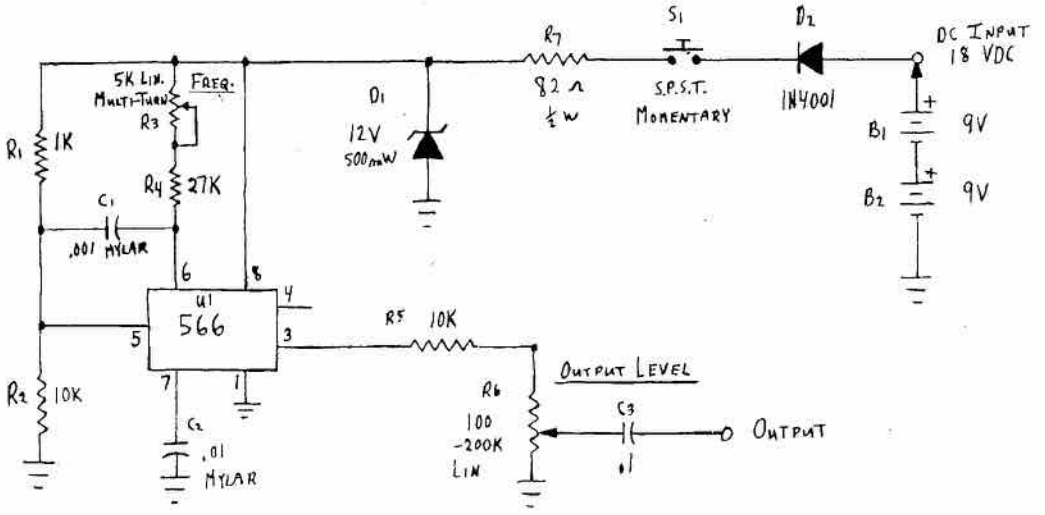


Fig. B: Tone Encoder 941 Hz
Freq. Range - 890-1000 Hz

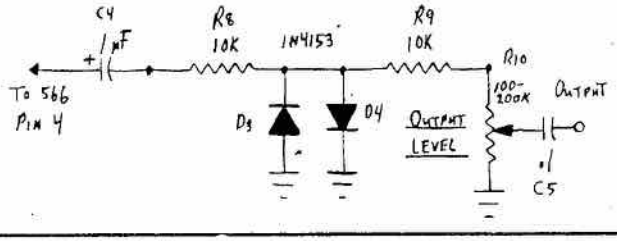


Figure C

Dynamic Battery Tester

By Glenn McMichael VE3CGU

Since the advent of solid state equipment, Amateur radio stations have become much more portable. Many Amateurs own two-metre walkie-talkies, portable grid dip meters and many pieces of battery powered test gear, keyers and the like.

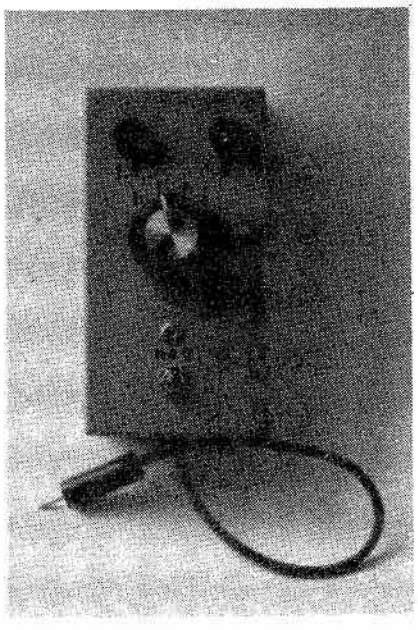
Most households also contain battery operated calculators, cassette recorders, transistor radios and flashlights. A check of my QTH reveals that I have 34 1.5 volt cells and nine 9-volt batteries installed in a variety of equipment. This does not include spares on hand. Most are carbon-zinc or ni-cads, and a few are manganese-alkaline.

With that many batteries on the go it becomes necessary to have a dependable tester to be able to rapidly identify weak or shorted cells. Since 90% of my batteries are either 1.5 or 9 volt models, I decided to concentrate on these two voltages. The criteria were that any such tester must test under load and be inexpensive, accurate, simple to operate and able to check both 1.2 volt ni-cads and 1.5 volt conventional cells.

The pre-assembled commercial testers were passed over because for the money they weren't very accurate, having only a small uncalibrated meter with a green/red, good/replace scale. This is rather approximate considering that a good ni-cad's 1.2 volts equals a discharged carbon-zinc's voltage. I prefer to know exactly what voltage is present, and I like to test under light and heavy power drains.

The photo shows the design I built. It uses the V-O-M (volt-ohm-milliammeter) scale which saves having to purchase a voltmeter which will be used just a few times a month. Also, we get good accuracy with a 20,000 ohm/V meter.

Since a weak battery will generally test good when it is not connected to any load, the resistors R1 to R4 act as an artificial load to duplicate actual use. With values shown in Fig. 1, approximate current drains are as follows:



Switch Position	Current
1.5L	10 mA
1.5H	30 mA
9L	10 mA
9H	25 mA

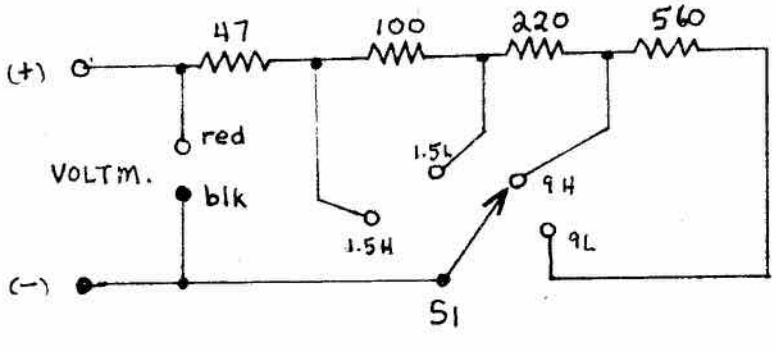
These ranges should cover most anything you might wish to test, car or lantern batteries excepted. It might be a good idea to tape a copy of these loads to back of tester for future reference.

A 1.5 volt cell can be considered expended when its potential under load is 1.2 volts or less. Ni-cads require re-charging once their voltage reaches 1.0. For 9-volt batteries, multiply above figures by the number of separate cells per unit.

OPERATION

Plug probes from VOM into the colour-coded jacks on the tester and place VOM on the appropriate scale. Set rotary switch, S1, on battery tester for correct voltage and load values.

Figure 1



Touch negative lead of cell or battery to the sharpened probe at the bottom of the case. This probe consists of a 6-32 brass machine screw which I filed to a point. It is mounted with steel nuts and fibre insulators. The sharp point makes good firm contact with the bases of the cells. It is also designed to fit into the small rivet hole on the 9 volt battery's negative clip connector. I prefer this type of contact to a double probe system because it makes batteries easier to hold and avoids slippage of probes while looking at the meter. If you ever require a second probe for the negative terminal, for example when testing cells in a battery pack, use an alligator clip to hook to the sharpened probe on the case.

I used four positions of a 10 position rotary switch which happened to be handy. The six remaining unmarked detents are not connected and place no load on the battery under test.

One precaution – be sure never to test a 9-volt battery on the 1.5 volt positions, as it will quickly drain the battery and cause R1 or R2 to overheat. The meter movement may also be damaged.

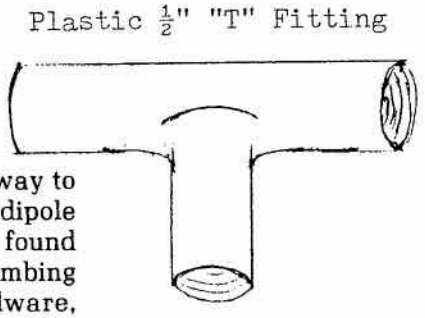
Parts should not cost over $12, depending on what you might have on hand in your parts bin. I believe you will find this unit to be serviceable and useful for many years of testing.

PARTS LIST

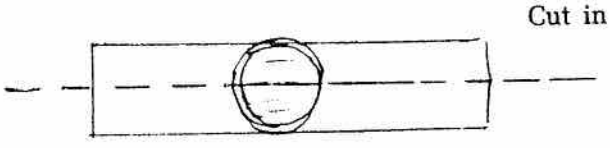
R1 - 47 ohm ½ watt
R2 - 100 ohm ½ watt
R3 - 220 ohm ½ watt
R4 - 560 ohm ½ watt
S1 - rotary switch, 1 pole, 4 position.
J1, J2 - red & black test probe jacks
Misc. - Case, transfer lettering, 6-32 hardware, fibre washers, knob, test lead, test probe, insulated hookup wire, insulated terminal strip. □

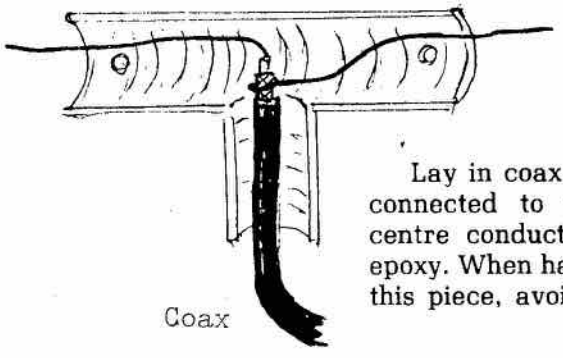
Glenn McMichael VE3CGU

Centre fitting for dipole

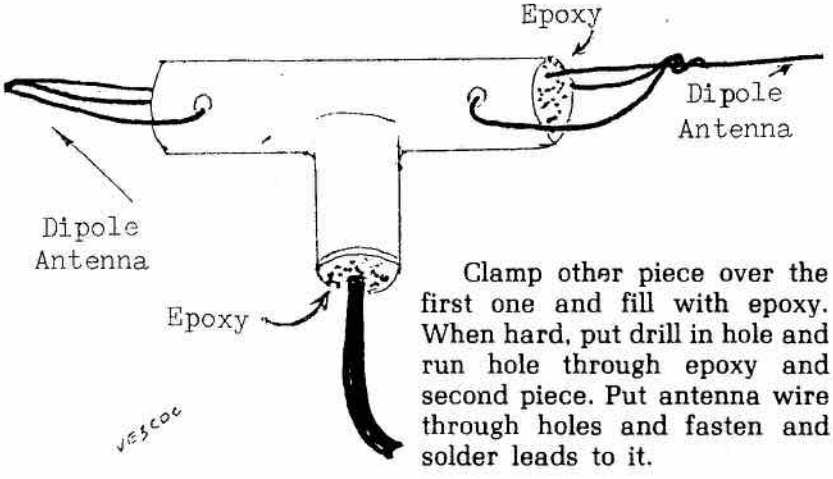


Here's an inexpensive way to make a centre fitting for a dipole antenna. The 'T' fitting is found for a few cents at the plumbing counter of any hardware, building material or auto accessory store. Thanks to Roly Beardow VE3AML.





Lay in coax and short leads connected to the shield and centre conductor. Fill up with epoxy. When hard, drill holes in this piece, avoiding the leads.



Clamp other piece over the first one and fill with epoxy. When hard, put drill in hole and run hole through epoxy and second piece. Put antenna wire through holes and fasten and solder leads to it.

The Half-Sloper

By John S. Belrose VE2CV

The inverted-V, which is a dipole antenna that is higher at its centre where it is supported by the tower than at its ends, is a very popular antenna .. especially for the 80 metre Amateur band. Throw away one-half of this antenna, and the balun as well, tie the sheath of the coax to the top of the grounded tower and the centre conductor to the half of the inverted-V dipole that remains and presto: you have a "gain" antenna!! This seems to me odd. This is the enigma of the half-sloper[1] .

Some who have used the antenna have experienced difficulty with matching it for operations on the band they thought they were "cutting" it for. Others have apparently experienced no difficulty. Concerning performance, some have reported good results with this type of antenna, others have been unable to make it work, or became discouraged because they could not resonate it. The most recent article[2] on the half-sloper used one-half of a trap dipole, instead of a $\lambda/4$ piece of wire. Since trap dipoles are rather tricky narrow band antennas at best, one would have expected that a trap half-sloper would likely be an antenna difficult to match, yet Joe Adams, VE3CPU apparently experienced no problem. He coupled the antenna directly to his transceiver for operation on 80 through 10 metres, and in fact, he claims "gain" on the higher bands measured with respect to a half-wave dipole at the same height.

In my opinion, the half-sloper is a type of top-loaded vertical radiator with elevated feed, instead of the more conventional base-fed vertical. This interpretation is made clear in Figure 1. In (a) I show a conventional base-fed L-type antenna, and in (b) an L-type with elevated feed. This latter is equivalent to inserting the r.f. generator at the top of the mast as in (d) instead of more conventionally at the base of the mast as in (c). The half-sloper is a type of L-antenna in which the upper arm is sloping rather than horizontal ... more exactly, an umbrella-type in which the top loading has been reduced to one active guy.

Arguments supporting this interpretation are given in my QST article, above reference (1), since for the case where the height of the mast was approximately $\lambda/4$, and the length of the sloping wire was $\lambda/4$, the antenna was resonant at a very much lower frequency. In fact, if f is the frequency which the antenna was being "cut for" and f_0 the fundamental quarter-wave resonant frequency of the antenna, model measurements showed that

$$f/f_0 \approx 1.5$$

The half-sloper, as conventionally used, was therefore being operated at a frequency between its first and second resonance (between quarter-wave and half-wave resonance), and indeed the reactance of the antenna was inductive at its feedpoint, as would be expected on this reasoning. Since a matchbox was not inserted at the feedpoint, it was not possible to resonate the antenna by varying the length of the sloping part of the antenna. At the

frequency f there was little directivity, and the field, measured on the National Research Council's antenna pattern range (at 200 MHz) in Ottawa was dominantly vertically polarized.

While full scale antennas are erected over a finitely conducting earth, and in general when this type of antenna has been tried, the mast was not tied into a radial ground system, nevertheless, we would expect that the reactance at full scale would be identical to that measured for the model antenna, and the pattern would also be similar.

The purpose of this note is to bring to your attention my dilemma concerning the claimed results obtained with the half-sloper, and to suggest to those who have used it that a very much better antenna would be to convert the tower and the sloping wire into a half-delta loop [3]. The half-delta loop is a resonate antenna at its fundamental frequency f_0 and at all harmonics $2f_0$, $3f_0$, $4f_0$, etc. This antenna is a good DX antenna, although it does exhibit directivity at the harmonic frequencies. In particular, nuls appear broadside to the plane containing the antenna, and maximum gain is found in the direction away from the mast and the feedpoint. □

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References:

*1 Belrose, J.S., "The Half-Sloper – Successful Deployment an Enigma", QST, May, 1980.

*2 Adams, J., "Sloping 5 Band Antenna", TCA, p. 40-41, February, 1980.

*3 Belrose, J.S., "The Half-Delta Loop – A Grounded Vertical Polarized Antenna", Ham Radio, 1980.

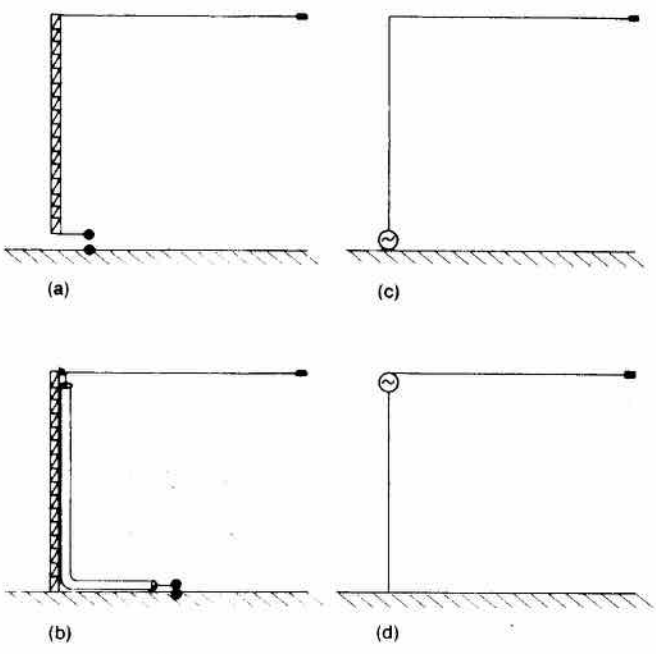

Figure 1

As the Indicator turns

by Arthur Candell HH2A

It's probably a well-guarded secret of Cornell-Dubilier Electronics and don't ask me how I discovered it, but amazingly, here it is.

Do you have a North-centered meter on you Ham III or similar rotor using the same control box and wish to convert it to a South-centered meter? No need to make a homemade face or send to CDE for a South-centered meter, because you already have one.

Unplug the AC line, take off the cover, remove the one nut holding the pilot light assembly, remove the two brass nuts holding the meter contacts to the printed circuit board, loosen the screws holding the meter in its mount and slip it out. Carefully pry off the plastic meter face, and with a thin knife, remove the dial plate which is held by two tiny dabs of rubber cement, being careful not to bend the needle. Lo and behold, on the reverse of the dial plate is a South-centered face! No need to add more cement; turn it over, press it on the old rubber cement making sure the needle is not contacting the face, and replace. Ten minutes and the only tools necessary are a small Phillips screwdriver, a regular screwdriver and a pair of long nose pliers and you have a South-centered meter. □

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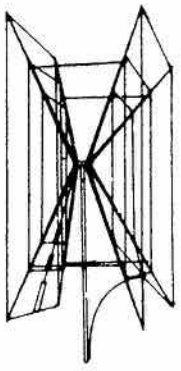

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3. To act as a liaison and advisory agency between its members and the Department of Communications;

4. To promote the interests of Amateur radio operators through a program of technical and general education in Amateur matters.

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VE7BBQ Peter Driessen, 1946 York Ave., Apt. 203, Vancouver, B.C. V6J 1E3. 604-732-3298.

VE6HO Jim McKenna, Box 703, Ft. McLeod, Alta., T0L 0Z0. 403-234-4068.

VE3FON Marv Nash, 43 Bruce Farm Rd., Willowdale, Ont. M2H 1G4. 416-223-5544.

VE3FTO Ed Sheffman, 182 Fenn Ave., Willowdale, Ont. M2P 1X9. 416-226-1701.

VE2SY Lionel Bonhomme, 22 Cinq-Mars, Hull, Quebec J8Y 6B7. 819-771-4953.

VO1NP Nate Penney, Box 10, Shoal Harbour, Nfld. A0C 2L0 709-466-2931.

BANNED COUNTRIES LIST

Iraq, Khmer Republic**, Libya, Somalia, Turkey, Viet-Nam, Peoples Democratic Republic of Yemen.

** Station XU1AA has been authorized to exchange communications with Amateurs of other countries. Note: The calls 7OA to 7OZ are assigned to the Peoples Republic of Yemen.

THIRD PARTY TRAFFIC AGREEMENTS

Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Israel, Jamaica, Mexico, Nicaragua, Peru, Trinidad/Tobago, U.S.A. (Territories and Possessions), Uruguay, Venezuela.

RECIPROCAL OPERATING AGREEMENTS

Austria, Barbados, Belgium, Bermuda, Brazil, Colombia, Costa Rica, Denmark, Dominica, Dominican Republic, Ecuador, Federal Republic of Germany, Finland, France, Guatemala, Haiti, Honduras, Iceland, India, Indonesia, Israel, Luxembourg, Netherlands, New Zealand, Nicaragua, Norway, Panama, Peru, Phillipines, Poland, Portugal, Senegal, Sweden, Switzerland, United Kingdom, U.S.A., Uruguay and Venezuela.

Note: As a general rule, DOC will consider licensed Amateurs of Commonwealth countries for reciprocal privileges in Canada if the other country does the same.

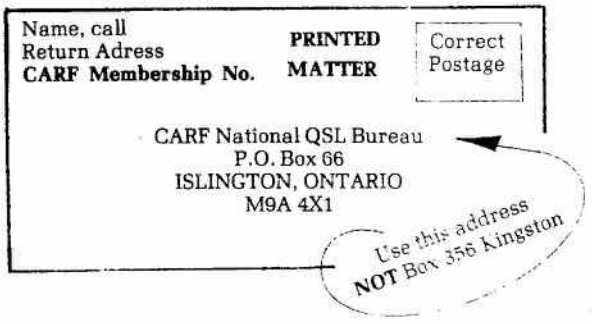
How to use the CARF QSL Service

The CARF Outgoing QSL Service will forward your QSL cards to anywhere in the world. This service is **free to CARF members.** If you send a lot of cards, a CARF membership will soon pay for itself in view of the high cost of postage when cards are mailed direct.

Please observe the following rules when using the CARF Outgoing QSL Service:

1. Sort cards alphabetically by prefix.
2. Sort Canadian cards numerically by call area.
3. Place small lots of cards in strong, heavy envelopes and seal securely. Wrap heavier packages in strong paper or put in cardboard box. Tie securely. Do not staple!
4. Address your package as shown in the diagram.
5. **Do not register the cards.** This only delays them, costs more and is not really necessary.
6. If you want proof that CARF received your cards, enclose a self-addressed, stamped postcard or envelope with 'Receipt' marked on it.
7. If a package should be damaged on arrival (very rare), CARF will send you a list of cards received so that you can check if any were lost.

(For an explanation of QSL Bureaus in general, see the CARF Regulations Handbook chapter on QSLing.)

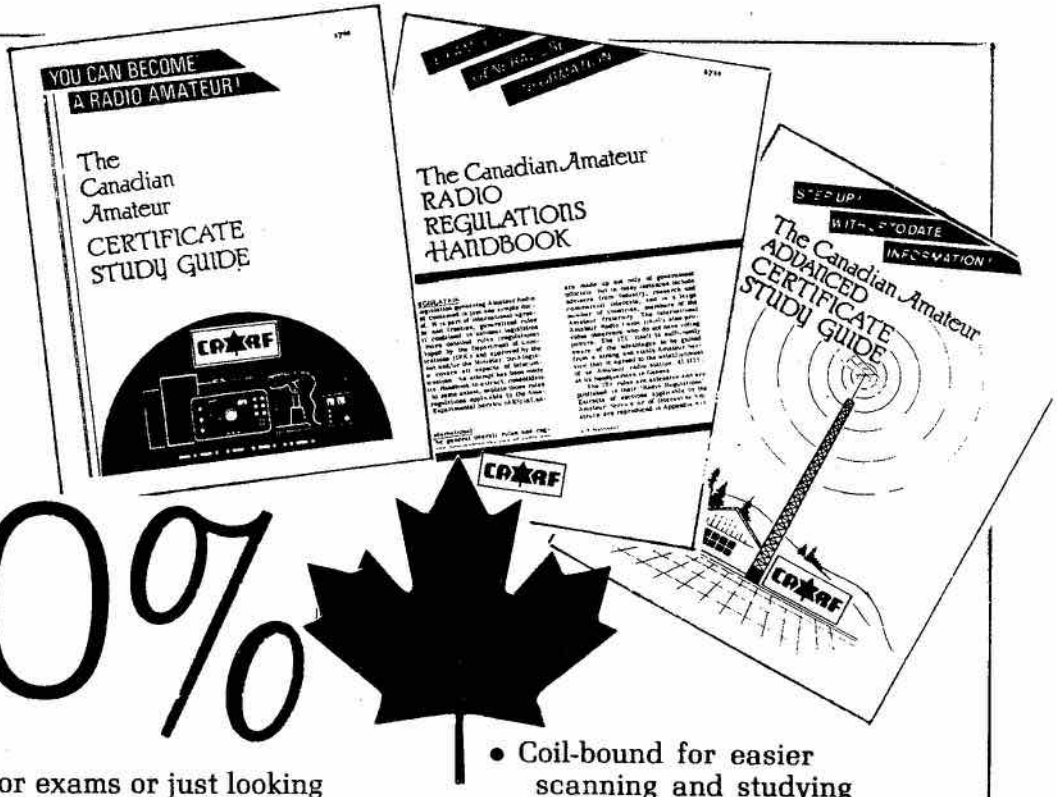


Le service d'envoi des cartes QSL de FRAC se charge de l'envoi de vos cartes QSL dans le monde entier. Ce service est gratuit à tous les membres de FRAC. Si vous envoyez beaucoup de cartes, les frais de votre souscription seront tôt récupérés dû au coût éleve du service postal quand les cartes sont expédiées directement.

Veuillez observer les règles suivantes quand vous utilisez le service FRAC d'envoi des cartes QSL:

1. Classer les cartes (DX) alphabétiquement par préfixe
2. Classer les cartes canadiennes par ordre numérique de préfixe.
3. Veuillez placer les petites quantites de cartes dans des enveloppes en papier épais et bien scellées. Envelopper les grosses quantités de cartes avec précaution de préférence dans du carton. N'utilisez pas de brocheuse!
4. Veuillez adresser vos envois.
5. **Ne Pas Recommander** les envois de cartes. Cette pratique est plu dispendieuse et occasionne souvent des retards et par conséquent, n'est pas réellement nécessaire
6. Si vous désirez recevoir une preuve que FRAC a reçu votre envoi de carte QSL, veuillez inclure une enveloppe pré-adressée ou une carte postale avec timbre avec le mot 'Receipt' imprimé.
7. Si un colis était endommagé sur réception (très rare), FRAC vous fera parvenir une liste des cartes reçues de sorte que vous pourrez vérifier s'il y en a eu de perdues dans le courrier.

Traduisé par Jack VE2SF



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ADDRESS _____

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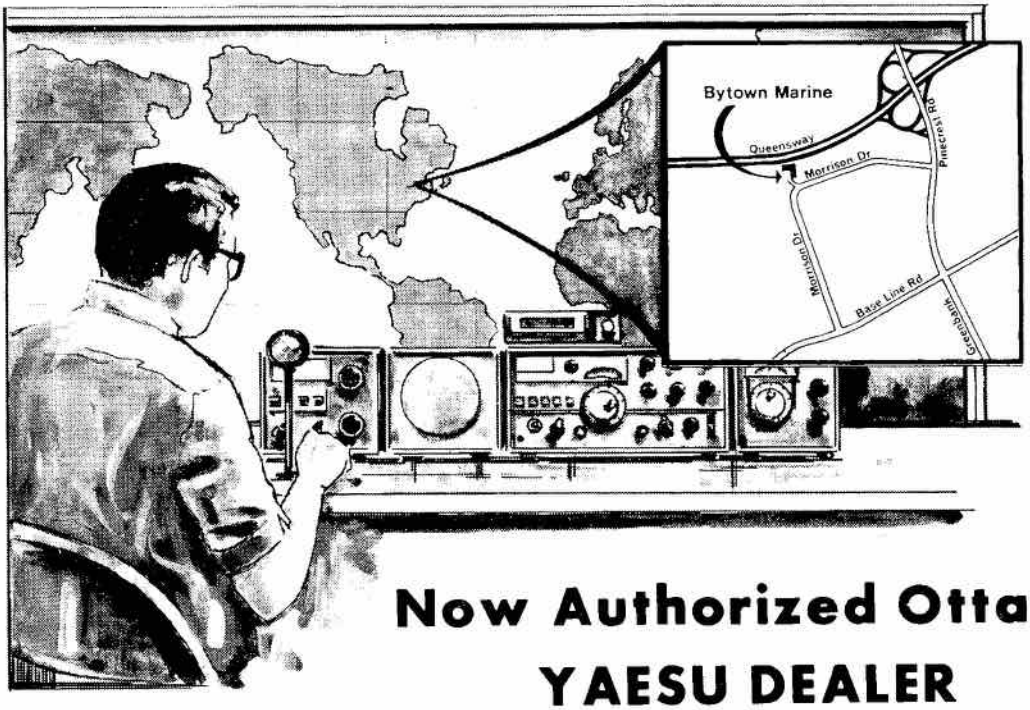

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